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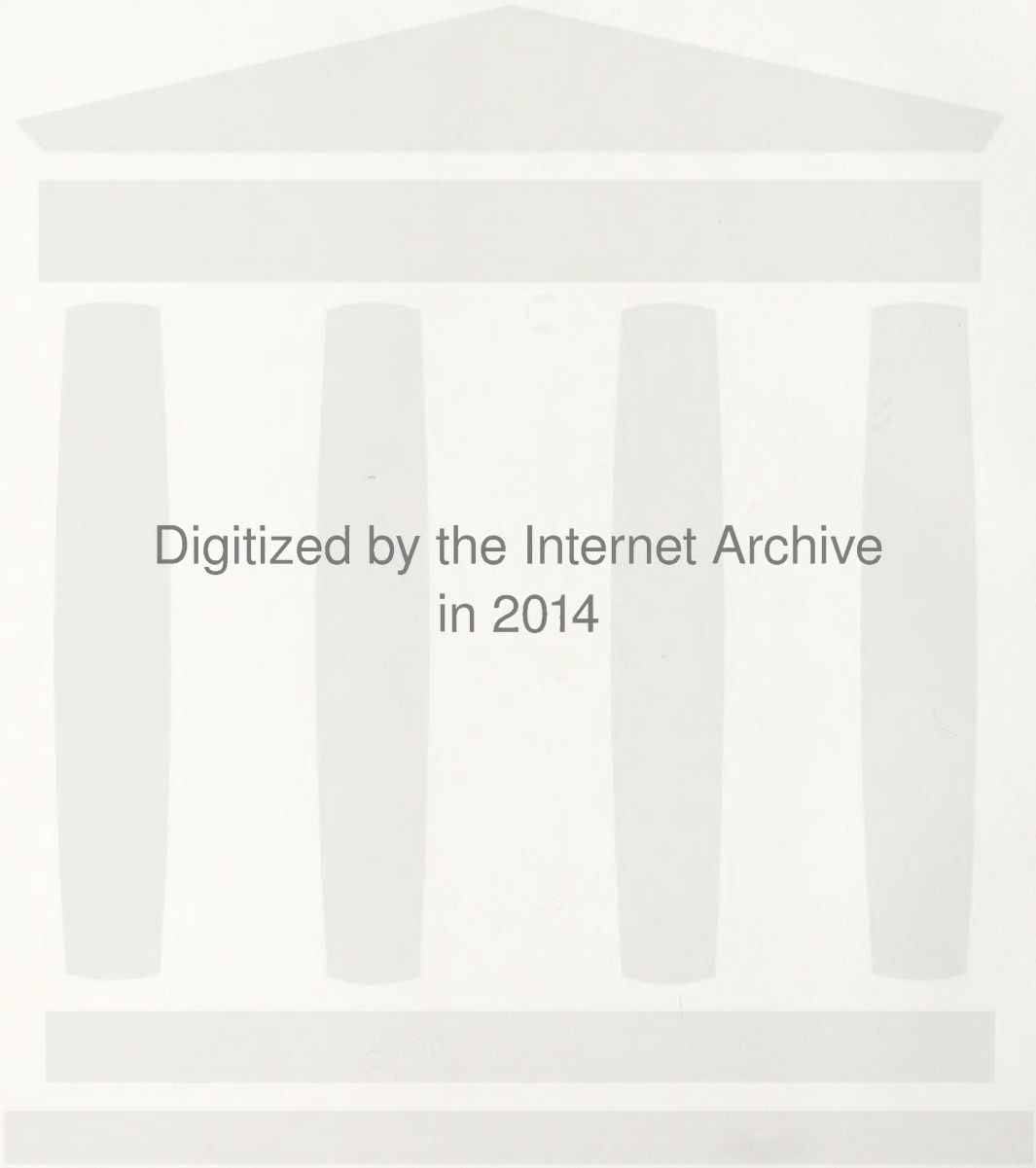
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# Wildlife IN NORTH CAROLINA

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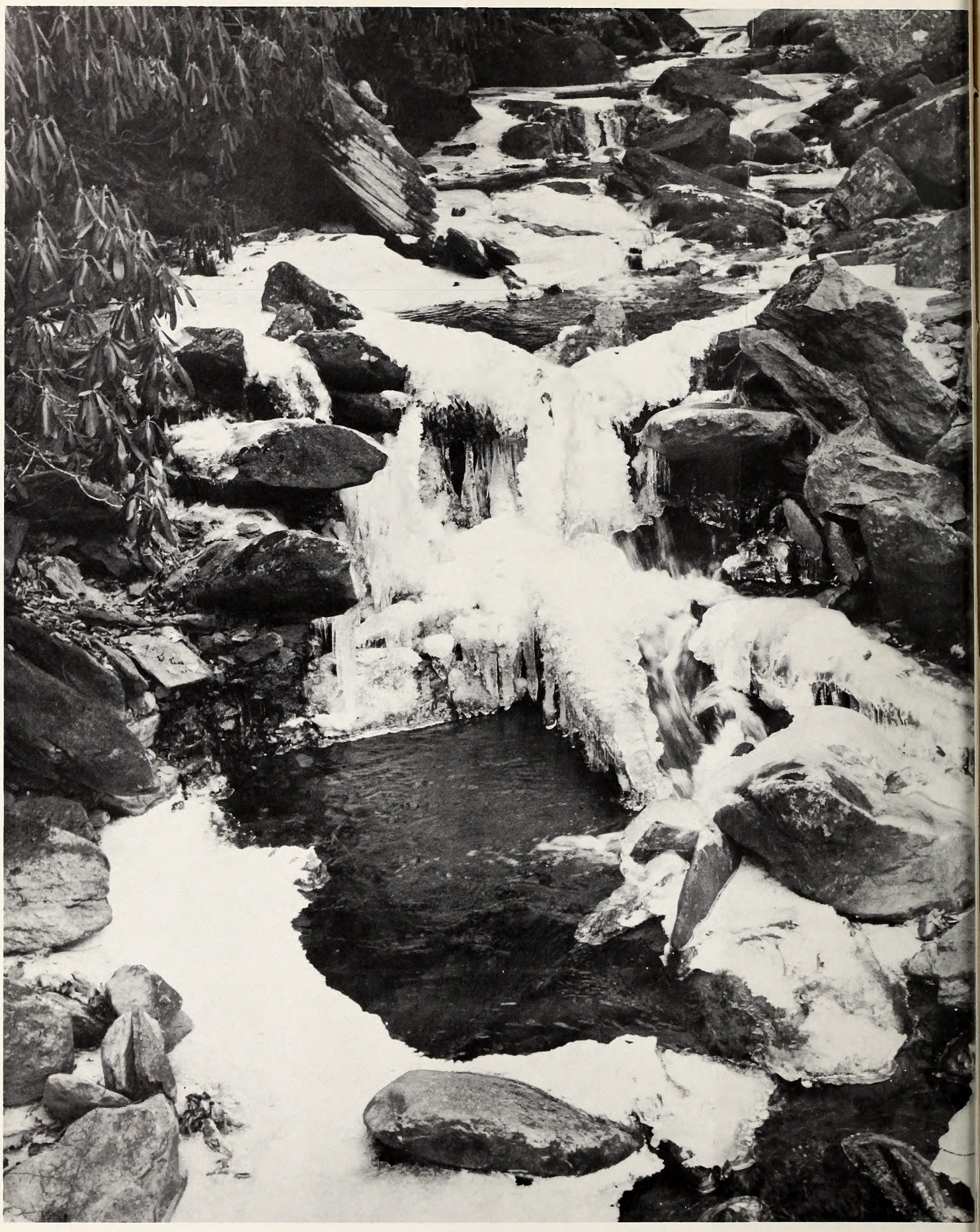

PHOTO BY JACK DERMID

*Winter—Mount Mitchell Wildlife Management Area*

STATE OF NORTH CAROLINA

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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VOL. XXXII, NO. 1 JANUARY, 1968

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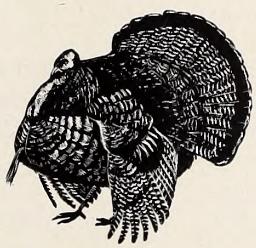
Of all our waterfowl, the mallard duck is perhaps the most universally recognized. The drake, pictured on this month's cover, is strikingly colored with dark reds, blues and greens. It is a favorite duck with hunters because of its wariness, size, and good eating qualities. The mallard prefers the shallower ponds, rivers, and marshes. This unusual painting was done on burlap by former wildlife protector Robert F. Logan of Chapel Hill.

# Wild Turkey Restoration— A Joint Responsibility

**by Thad Cherry**
Turkey Biologist



AS we see it, the problem of wild turkey restoration in North Carolnia is composed of two major segments, both of which are people-oriented. The first segment may be listed as habitat fragmentation and the second segment is public indifference. Let us explore each of these briefly and try to analyze just what must be done to keep the wild turkey from following the dodo bird to extinction.

Just before the turn of the century, our great state was blessed with a bountiful wild turkey population, almost literally from Manteo to Murphy. As man has rapidly gained knowledge, expanded his population and attempted to better himself, he has taken a heavy toll of our natural resources. Much of our vast acreages of hardwoods in western North Carolina fell to the axe and saw. Throughout much of the Piedmont, our forests were reduced to mere woodlots as industries arose and agricultural practices prevailed on the cleared land. Cities have spread far and wide.

Our magnificent road systems have riddled the once inaccessible wilderness. Reservoirs have inundated vast acreages of prime hardwood bottomlands. A tremendous wave of drainage projects is threatening to destroy the wildlife paradise of our eastern wetlands. Pines have taken over many of our upland areas where thousands of acres of mast-producing hardwoods have been poisoned in the name of man's progress. Our prime wild turkey habitat is being steadily reduced, and the end of this reduction is nowhere in sight.

### Any Hope?

But the seldom-realized fact remains — wild turkeys *can,* over a period of time, adapt themselves to moderate changes in their habitat. We in North Carolina now have, and probably always will have, enough suitable habitat to support a huntable population of wild turkeys. In our opinion, our problem is that the public sentiment toward wild turkeys has not been properly oriented as the prime habitat was being reduced!

As prime wild turkey habitat is reduced, the turkeys either move out to nearby prime habitat, or they attempt to adapt themselves to their new

surroundings. In either case, they are made extremely vulnerable to the gun. All too many of our people cannot resist the temptation to take advantage of the situation, and too many other people who might best help curb these activities are too indifferent to lift a hand.

A relatively small number of gunners, highly skilled in the art of illegally pursuing this magnificent game bird and luring it to its destruction, constitute a major threat. But they could be curbed if it weren't for the attitude of indifference on the part of the majority of our general public. Usually it is long after the deed has been done that reports are received of baiting and out of season hunting. Often, people living in turkey country learn of such activities when they first begin. If they would only take the time to contact wildlife authorities *before* the deed is done, it could make the difference between survival and destruction of the turkeys in jeopardy.

### You Can Help

This is not to overlook the fact that we do have a lot of fine sportsmen, landowners, and other individuals and groups who take great pride in efforts to preserve our wild turkey population. We even have a growing organization of dedicated sportsmen—the North Carolina Turkey Hunters Association—whose vital interest is the preservation and enhancement of our wild turkey population. Our Wildlife Resources Commision has a force of dedicated wildlife protectors which we think is unexcelled anywhere. But these people, even with their great common interest and dedication, cannot do the job by themselves. They must have the active support of the general public throughout the range of the wild turkey.

In some of our neighboring states, remarkable progress has been made in the field of wild turkey restoration. In some areas, bountiful turkey populations now exist where there were none just a few years ago. The people in these areas are extremely proud of their new turkey populations. They protect and defend them almost as if they were a part of their own families. They enjoy watching them, and, yes, even hunting them on a limited basis. The people—the general public—in areas where wild turkeys have been restored, first had to develop a deep sense of respect and reverence for wild turkeys. They had to want them, work for them, and then defend them.

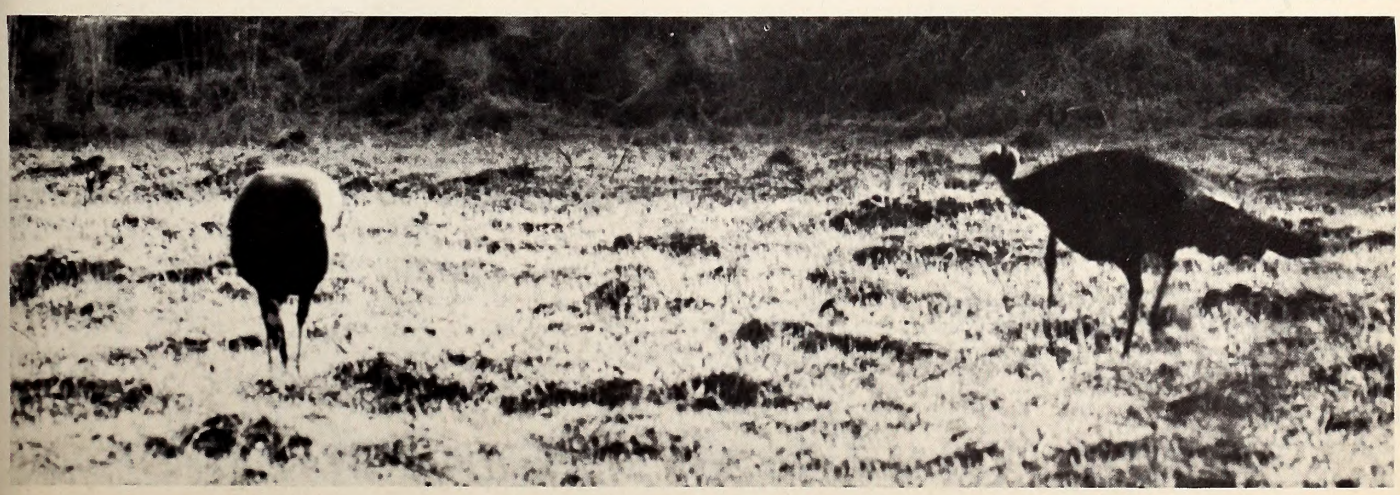
### Wake Up!

Before we in North Carolina can ever have a successful wild turkey restoration program, we must first alter the present public sentiment toward wild turkeys. We must realize that it would be a great privilege to have wild turkeys around us. We must realize that the people who violate our game laws and regulations by illegally killing wild turkeys are committing crimes against all of us who want to see a comeback of our turkeys. And we must then realize the importance of letting our sentiments be known where it counts!

Our wild turkeys are hunted unmercifully at all times of the year, with little or no regard to age or sex, by a number of "professional" poachers, and by a lot of people who just can't turn down the temptation. Our wildlife protectors have practically an impossible job in apprehending and prosecuting such violators without the help of the general public. Only when these violators realize that the general public is stepping up its fight against them will we be making much progress. Every interested citizen of this state should feel obligated to emphasize the fact that he will not stand idly by and watch a poacher in action. Our friends and neighbors who idly stand by and watch this shameful slaughter should be considered as guilty as the poacher himself.

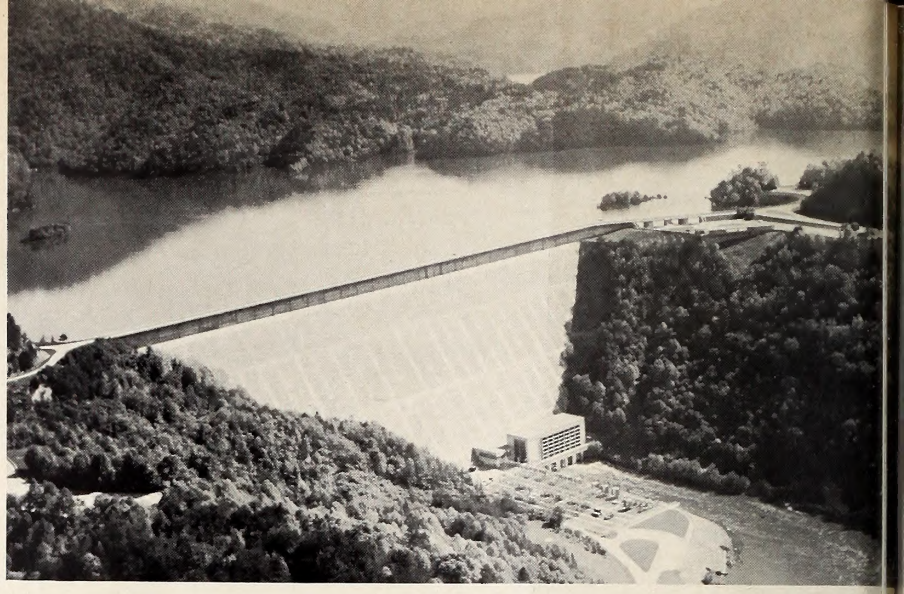
Sportsmen and interested landowners have the future of our wild turkey population in their hands. They are the ones who will determine whether or not the Wildlife Resources Commission's wild turkey restoration efforts are successful. The choice is theirs—they can stand by and watch the obliteration of our wild turkeys by "professional" poachers and by other hunters who can't resist the temptation, or they can take the initiative and begin their own individual crusade. Now is the time to act, for soon it may be too late. ⬍

PHOTO BY LUTHER PARTIN



# Fontana Reservoir

by Darrell Louder and
W. Donald Baker
Division of Inland Fisheries



FONTANA Reservoir, impounded by the Tennessee Valley Authority in 1944, lies in Swain and Graham Counties, North Carolina. It is bordered on the north by the Great Smoky Mountains National Park, on the west by Cheoah Reservoir, on the east by the Tuckaseigee River Valley, and on the south by the Cheoah Mountains and the Nantahala National Forest.

At spillway elevation of 1,710 feet, Fontana Reservoir has a surface area of 10,670 acres, a maximum depth of 440 feet, a maximum width of 0.6 mile, a shoreline length of 248 miles, and holds 1,444,300 acre-feet of water. The reservoir has steep sides and a bottom of rock, gravel, silt, and debris. There are also a few clay, stump dotted slopes which largemouth bass sometimes inhabit.

Fontana Reservoir's watershed has a drainage area of 1,571 square miles. Principal influent streams are the Nantahala, Little Tennessee, and Tuckaseigee Rivers. Other important feeder streams include Hazel, Eagle, Forney, Sawyer, Noland, Panther, and Alarka Creeks, all of which are cold, clear mountain streams. The average inflow into the reservoir ranges from 2,643 to 10,081 second-feet whereas the average discharge from the reservoir ranges between 3,145 and 7,318 second-feet. Heaviest rainfall occurs in March, April, and July.

Fontana Dam is a gravity-type concrete dam, located 61 miles upstream from the mouth of the Little Tennessee River. It is 480 feet high, measures 2,365 feet along the top, and consists of 2,815,500 cubic yards of concrete and 760,600 cubic yards of earth and rock fill. The maximum width at the base is 377 feet and the maximum width at the top is about 20 feet. The elevation of the penstocks is between 1,463.2 and 1,448.1 feet above mean sea level.

The reservoir has many small coves, eight islands, and is bordered by forested land. In the lower end of the reservoir the trees were not cut below the 1,400-foot contour. In the upper end of the reservoir and above the 1,400-foot contour, many tree stumps still remain and provide good shelter for largemouth bass, crappie, and bluegill.

## Sport Fishing

In 1964 and 1965 creel clerks interviewed almost 2,700 fishermen representing over 17,000 hours of fishing. These data indicate that most fishing occurs in March and May. However, the only time fishing pressure is really heavy is in early spring when walleye are spawning in the Little Tennessee arm of the reservoir.

The average catch per hour of fishing during the two test years was 0.2 fish weighing 0.23 pound. This means that if you're an average fisherman, you can expect to catch one fish weighing slightly over one pound each time you fish Fontana Reservoir.

Most anglers (51 percent) fishing Fontana Reservoir prefer artificial lures. About 37 percent utilize both artificial and natural baits. The 12 percent that prefer natural bait exclusively use nightcrawlers and lizards (salamanders). These natural baits are used primarily by jig fishermen for largemouth bass in April and by fishermen fishing for walleye during May and June.

Because the reservoir is situated in the center of a fabulous tourist area, fishermen from all parts of the United States relax and fish here. The majority of the fishermen, however, (90 percent) live within 100 miles of the reservoir, and 45 percent travel less than 25 miles one way to fish.

Largemouth bass fishing reaches its peak between March and May. During this time fishermen make good catches of big bass either on plugs or on a gob of plastic worms and nightcrawlers dangled at the end of a long jig pole. The majority of largemouth bass taken are five-year-old fish, but three- and four-year fish also contribute considerably to the creel.

Walleye fishing is good from March through June. The March spawning run produces good catches as does trolling and fishing with nightcrawlers on the bottom during May. Although a few fish spawn in other tributaries, the Little Tennessee River is the primary spawning area of Fontana Reservoir walleye. Some are taken during daylight hours but most are caught at night. The

walleye catch is dominated by three-year fish followed by four-, two-, and five-year fish, respectively.

Smallmouth bass fishing is tops during April and May. These fish average only 1.2 pounds but are more numerous in the catch than largemouth bass. Smallmouth bass ending up in the creel are dominated by three-year fish whereas the two- and four-year fish contribute only about 13 percent each of the smallmouth take.

White bass are one of the major game fishes in Fontana Reservoir with the best catches occurring during May and October. White bass appearing in the creels are mostly fish of the two-year age group. Five- and four-year fish together account for 49 percent of the total catch. These four- and five-year fish average 15 and 16 inches, respectively, and weigh about three pounds each.

Crappie fishing is fair throughout the year, with April and May being the best months. The bulk of the catch (about 51 percent) is comprised of four-year fish followed by three- and five-year fish.

Ninety-nine percent of the total sport catch in Fontana Reservoir is comprised of eight species. The overall harvest of the major game species, largemouth bass, smallmouth bass, walleye, white bass, black and white crappie, and bluegill is similar with the contribution of each averaging between 10 and 20 percent for the two years a creel survey was being conducted. Fontana Reservoir, because of this variety of game-species, provides good fishing for one or more major species throughout the year.

In the tailwaters below Fontana Dam, trout can be taken from the first Saturday in April through Labor Day. This section of waters is stocked annually with hatchery fish.

**T. D. (Monk) Watson, displays a fine catch of walleyes taken on the March spawning run from Fontana Reservoir.**

PHOTO BY CRISP STUDIO

## Fish Populations

Recent fish inventories indicate that 27 species of fishes inhabit Fontana Reservoir and that the average acre of cove has 1,851 fishes weighing 40.3 pounds. This would mean for the whole reservoir something like 20 million fish weighing one-half million pounds.

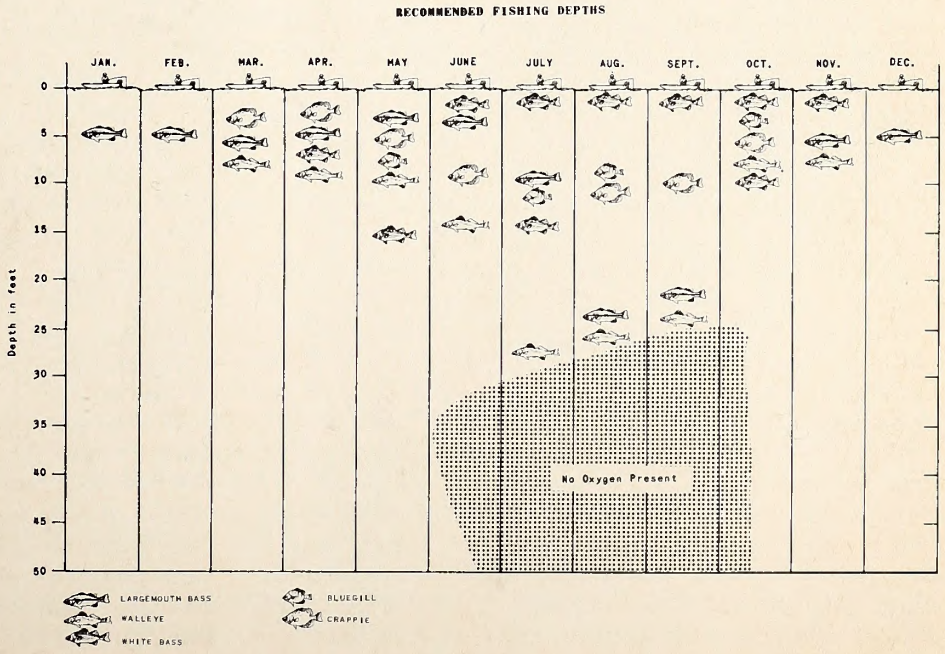
By weight, about 47 percent of the fishes found in coves are game fishes—the game fishes being bluegill, largemouth bass, smallmouth bass, black crappie, walleye, green sunfish, and white crappie. The food fishes comprise 29 percent of the population and include such species as redhorse, channel catfish, flathead catfish, hogsuckers, and carp. An additional 21 percent is forage fish made up of gizzard shad and shiners.

Fontana is rather unique in that a large portion of the fish population is composed of carnivorous game species. The usual situation is one in which the forage fishes are much more abundant than game fishes.

The ideal reservoir fish population is one which contains a variety of fishes of all sizes to supply various seasonal and qualitative demands of the fishing public. The fish population should be fast growing which in turn requires a continuous supply of forage fishes that is adequate yet not numerous enough to stunt the growth of the game species. This situation is ideal and probably never occurs longer than a brief year or two as the reservoir passes from one development stage to another.

Although Fontana Reservoir is nutrient poor and contains a relatively small standing crop of fishes, fishing is usually good. Harvest of available fishes is low because of light fishing pressure. The game fishes in the reservoir are usually hungry and therefore ready to strike a lure because there

**This chart shows depths at which various species of Fontana fish are likely to be during each of the months. It should help you locate your favorite fish.**



is not enough food to supply the demand.

Stomach analysis of the game fishes in the reservoir showed that 60 percent of the white bass preferred gizzard shad as food. In fact, one 12-inch white bass had 275 one-inch gizzard shad in its stomach. Walleye prefer gizzard shad, black crappie, channel catfish, and young largemouth bass. Largemouth bass, smallmouth bass, and black crappie also were found to prefer gizzard shad as their main diet.

### Growth

Growth of Fontana Reservoir fishes is comparable to the growth of fishes in other mountain reservoirs. During the first two years of life the growth rate of Fontana Reservoir fishes is relatively slow, probably because of the scarcity of plankton and aquatic invertebrates.

Largemouth bass and smallmouth bass reach the legal length of 10 inches between their second and third growing season. During their first three years of life, smallmouth bass outgrow largemouth bass, but once the largemouth bass becomes large enough to feed on intermediate-size gizzard shad, their growth rate overtakes that of the smallmouth.

White bass growth rates are average for eastern Tennessee River Valley fishes, whereas walleye have a slower growing rate. This is attributed to the shorter growing period and insufficient food supply during part of the year.

Bluegill very seldom exhibit good growth in large reservoirs but their growth in Fontana is exceptionally poor. The growth rates of white and black crappie are also poor because of the heavy competition among the carnivorous fishes for the inadequate supply of gizzard shad. On the other hand, channel catfish and flathead catfish have above average growth rates for these species in the Eastern Tennessee River Valley.

Gizzard shad, the principal forage fish in the reservoir, are very prolific, but due to the shortage of food its growth is slow. Because of this slow growth rate two-year-old shad are still small enough to be eaten by predator fishes. Shad reproduction and survival, however, have suffered from spring floods during spawning, from lack of suitable spawning substrate, and from heavy predation by expanding white bass and walleye populations. One of the more important management problems facing fishery biologists is how to obtain sufficient forage for the many carnivorous species.

ACCESS POINTS

| BODY OF WATER AND LOCATION OF ACCESS AREA<br>Listed is access area, county, nearest town or community and road. Asterisk indicates area owned by N.C. Wildlife Resources Commission. | PAVED RAMP | SERVICEABLE DIRT RAMP | LAUNCHING FEE | FUEL | FOOD | BAIT (live) | BAIT (other) | TACKLE | BOAT RENTAL | MOTOR RENTAL | MARINE REPAIR | DOCKING | BOAT STORAGE (covered) | MOTEL (close by) | CAMPING FACILITY | CABINS | GUIDE | LICENSE AGENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alarka Boat Dock, Swain, Bryson City | | X | | X | | X | | | | | X | X | | X | | | | |
| Almond Boat Dock, Swain, Bryson City, Hwy. 28 | | X | X | X | X | X | X | | | | X | X | | X | | X | X | X | | X |
| Crow's Nest Boat Dock, Graham, Fontana Village, Hwy. 28 | | X | | | | | | | | | X | X | | X | | X | X | X | | |
| Fontana Boat Dock, Graham, Fontana Village Resort, Hwy. 28 | X | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | X |
| Frank Crisp's Boat Dock, Graham, Bryson City, Hwy. 28 | | X | X | X | X | X | X | | | | X | X | | X | | X | X | X | | X |
| Greasy Branch Boat Dock, Swain, Bryson City | | X | | X | | | | | | | X | | | X | | | | | | |
| Lee Sawyer's Boat Dock, Graham, Bryson City, Hwy. 28 | | X | X | | | | | | | | X | X | | X | | X | X | X | | X |
| Ysali, Swain, Bryson City, Hwy. 28* | | X | | | | | | | | | | | | | | X | X | X | | |
| Tuckaseigee Boat Dock, Swain, Bryson City | | X | | X | X | | | | | | X | | | X | | | | | | |
| Wilderness Boat Dock, Swain, Bryson City | | X | X | X | X | X | X | X | X | X | X | X | | X | | X | X | X | X | |

### Why the Drawdown?

Most fishermen and sportsmen ask this question repeatedly. They would like to see the lake full all of the time, but this is inconsistent with the primary purposes for which the reservoir was created. Flood storage space in the reservoir must be reserved between January 1 and April 1 for the regulation of flood flows. This is the time of the year when heavy rainfall can be expected and severe basin-wide floods are most likely to occur. Therefore, the year begins with Fontana at its lowest level, about 130 to 150 feet below full pool.

As the flood season progresses, the reservoir is allowed to fill gradually. The amount of the required reservation becomes less as the chances of flood occurrences progressively decrease with the passage of winter and spring. Some, but lesser, space is still reserved during late spring and summer for controlling flash floods that may occur during that period. When filling ceases, usually in June, the water stored in the reservoir is gradually released to supplement the natural streamflows downstream for both navigation and power generation. The rate of drawdown is greatest, of course, during the drier of the fall months of the year. The reservoir must be drawn down at least to elevation 1615 by January 1 in preparation for the next flood season. Normally it is drawn several feet below this level to avoid spilling water later that could be used through the turbines to generate electrical energy. The operation of Fontana is tied in with the whole TVA river control system, so what happens in these other reservoirs has a direct bearing on what happens to the water in Fontana.

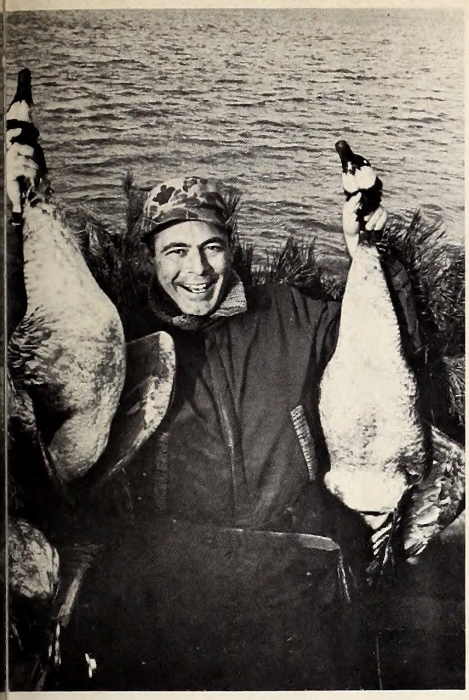
### Fishes Found in Fontana Reservoir

| *Game* | *Food* | *Forage* |
|---|---|---|
| Largemouth bass | Channel catfish | Gizzard shad |
| Smallmouth bass | Flathead catfish | Golden shiner |
| Walleye | Carp | Popeye shiner |
| White bass | Goldfish | Whitetail shiner |
| Black crappie | Shorthead redhorse | Threadfin shad* |
| White crappie | Golden redhorse | |
| Bluegill | River redhorse | |
| Redbreast sunfish | Northern hogsucker | |
| Green sunfish | Bowfin | |
| Warmouth | | |
| Rock bass | | |
| Muskellunge | | |
| Rainbow trout | | |

*Unsuccessfully introduced

This article is available in pamphlet form from most Fontana boat docks and by writing "Fontana Pamphlet" Wildlife Commission, Box 2919, Raleigh, N. C. 27602.

# Currituck? YES!



by H. Lea Lawrence

Photos by the Author

THAT rooster crowing at 5 a.m. in the North Carolina dawn must have been crying out in pain, for even in the warmth of the camper, I knew that the front which had been moving in since the previous afternoon hadn't left things balmy outside.

I slid down further in the blankets, and only when the smell of frying bacon and bubbling coffee drifted to me did I realize that Bob and Joel were already up and on the move, and that we were due to meet our guide within the hour.

The hot breakfast woke us up thoroughly, and the added insurance of the containers of hot coffee made the cold outside not quite so formidable. Even after we met Bud Lupton at the dock at Poplar Branch and were skimming over the broad expanse of Currituck Sound, it still seemed to be a milder day than I had anticipated, but watching the thousands of ducks, geese and swans that streamed across the brightening sky contributed to this warming effect. They always do.

Yet if the waterfowl we were seeing seemed to point to instant success, we were wrong. The wind had shifted during the night and was blowing from the North, and our blind, just opposite the famed Currituck Club was facing wrong for this kind of wind. Bud knew it, and said so, but he felt some of the early flights of geese might give us a pass there, but it soon became apparent it wasn't going to happen.

IT was my first trip to Currituck, as it was for Bob Steber, my companion. Bob is Outdoor Editor for the Nashville (Tennessee) *Tennessean;* I'm a free-lance writer who resides in Nashville, also. Joel Arrington, Outdoor Editor for the Travel and Promotion Division for the State of North Carolina, had been there before, and only he and Bud knew that this early lack of action wasn't particularly significant.

"What do you think, Bud?" Joel asked. Bud, a native of Poplar Branch who has hunted and fished on Currituck all of his life, has the reputation of being one of the best guides in the area.

"Time to change," he replied, "that's all there is to it. We'll just make a quick switch to my open water blind."

Bob looked happier, and I must have, too, because neither of us had known we had an alternate blind. While Bud picked up the decoys, we all had a cup of coffee as Joel explained the unusual set-up on Currituck Sound in regard to waterfowl blinds.

"A person can have two blinds registered," he said, "but only two. These blinds often remain in the same families for generations, and can actually be willed to descendants. Naturally, the people must register the blinds on an annual basis, but seldom are any not registered. Occasionally registered blind sites don't have blinds, but they are still legally in possession of whoever registered them. The chances of an outsider picking up a blind site at Currituck are very slim indeed. Yet it's a simple matter to hunt with the local folks or guides, and a guide is important on Currituck."

He also explained that blinds must be 500 yards apart in every direction from the next nearest blind, but that these distances have been established for many years, and the blind sites are well-marked.

As we moved to the new location, I saw what he meant. The Sound was dotted with blinds in a neat pattern, extending as far as I could see in all directions. At first I had the idea that this would preclude much action, but when we were settled in the blind I saw that 500 yards over open water is a long distance.

BUD had placed the duck and goose decoys out again, and he was hardly back in the blind when the first action came. I wasn't watching, but I heard Joel hiss and saw him crouch lower and reach for his Browning automatic. Almost as quickly I slid the Winchester Model 12 closer to me, set to move at a second's notice. I don't think Bob had ever let his Winchester automatic out of his hands since we entered the blind .

"Cans," Bud almost yelled. "Get 'em!"

I saw the two ducks barrelling in right over the decoys, and I centered on the big drake in the lead. The first shot rocked it, but it took a second shot to put it down for keeps. The hen was kicking upside down on the water when I looked back.

"Can't complain about that kind of shooting," Bud was saying, "But what about this one!" He suddenly pointed to a bufflehead skimming in low on the water.

That duck should always remember the confusion it viewed, and the results of the shooting

assured it of a long life as far as we were concerned. I missed it by four feet with the remaining shell I had in the gun, and Bob and Joel had about the same results as it put on a burst of speed. It gained altitude and sped on out of sight.

"What's that about 'good shooting?'" Bob asked. "You sure ended that round of congratulations fast!"

Bud was still laughing; in fact, he was almost convulsed.

"I've done it a thousand times myself," he chuckled, "so I can afford to laugh. I don't know of anything that will deflate a fellow's pride any quicker than having one of those little fellows fly by and thumb his nose at him as he blasts away. There's more lead put behind buffleheads than any bird I know of, unless it's a canvasback with a tail wind."

"It makes a point, in a way," Bud continued, "for using 12 gauge guns and full-choke barrels for this kind of shooting. Inland duck hunters often are used to ducks floating into decoys at easy ranges, and smaller bores and less choke work fine. In Currituck shooting, most of it pass shooting at divers or geese, you need all the wallop you can pack. I've seen too many hunters with twenties and sixteens pretty miserable on days when the cans were passing just on the outer edges of the decoys, wide open and tough to knock down. Frankly, this is '12 gauge' country, and there are those pretty happy with 10's!"

I knew what he meant, having hunted Mattamuskeet for geese for a number of years, as well as having had a healthy dose of pass shooting on the Northwest coast. And I noticed that the four guns in the blind all were up to Bud's standards: all 12's and all full-choked. Bud's ancient Remington automatic looked as though it might have been close to his own seniority on the Sound.

BOB and I had traveled from Nashville in his camper, after having been invited down by Joel at an outdoor writers' meeting some months earlier. We started at Mattamuskeet for geese, hit the Bodie Island marshes for ducks, and ended up with the "plum" part of the trip: Currituck.

I heard the blind to our left open up, but looking into the sun prevented me from seeing what they were shooting at. Bud, however, wearing sun glasses, watched for a few seconds, then gave us the sign to stay low. He crouched, too, using his hand behind him to keep us signaled down.

Then we were up again, this time looking straight at a flock of widgeons swinging into the decoys. With the wind still blowing hard, they immediately began flaring and milling. When the shooting stopped, I could count only two birds on the water, with the remainder winging away untouched.

This time Bud turned his head, and if he was laughing, I couldn't tell. We'd done a pretty bad job of adding to our limit on that pass. When he eased the skiff out to pick up the birds, we proposed a round of fanny-kicking among ourselves.

Currituck Sound has had a strange history as a waterfowl area. At one time the shallow, fresh-water expanse was the prime hunting spot on the Atlantic coast, since the profusion of waterfowl food attracted tremendous numbers of geese, swans and ducks. No greater canvasback spot ever existed. Then a lock near Norfolk was removed, allowing salt water to run into the Sound, and in a short time the aquatic food plants were killed. In turn, the vast flocks of waterfowl were forced to concentrate elsewhere where food was available, and Currituck became, in a sense, a desert as far as hunting was concerned.

Only after repeated moves by various groups succeeded in getting the lock replaced did the comeback of Currituck begin, even then it was a long, slow process. Today, however, not only has the aquatic food come back, but also the terrific large-mouth bass fishing has been revived, and the future of the Sound as a hunting and fishing spot seems assured.

THE first notice of this great waterfowl area, other than that of the natives of the area, came in 1854, when a group of northern sportsmen came to Poplar Branch by buggy to hunt. Some of these same hunters later formed the Currituck Club, an exclusive club which still exists. Other clubs were formed later, including the Piney Island Club, Dew's Island Club and the Swan Island Club. Although these clubs are private, a number of lodges are available for public hunting. Bob, Joel and I were staying in his camper, parked at Caroland Farms, a fishing and hunting lodge at Poplar Branch operated by Dorothy Grandy. This lodge can accommodate up to fourteen persons, and offers excellent home-cooked meals.

We heard the geese before we saw them, and after having had several false alarms with the protected whistling swans, we knew these were Canadas. Bud spotted them right away and began talking to them with a soft, slow type of calling I had never heard before, but which got instant results from the Canadas. For a moment it looked as if they were going to come straight in, and my heart crept to my throat as my hand edged toward the Winchester. Just as they were looking as big as bombers—which is when they're still out of range—they veered slightly, swung past in front of us and sailed down on to the water some three hundred yards distant.

I heard Bob's "whew!" as he leaned the automatic back against the front of the blind.

"Close call," he panted. "I had some of them already counted in the bag!"

I peeked over the top of the blind and watched the geese. They were tipping up, feeding in the shallow water, and they seemed quite content where they were. I sat back, lit a cigarette, and relaxed with a cup of cof-

fee. Bud, though, kept his eyes on the geese, and when he whispered to us in a few minutes, it took us off guard.

"They're drifting our way," he said quietly. "They may just be ours, after all!"

It still seemed like a long chance to me, and a peek through the sawgrass reinforced that idea. They were closer, but not much. I poured another cup of coffee and wiggled my toes, trying to get a little warmth back into them.

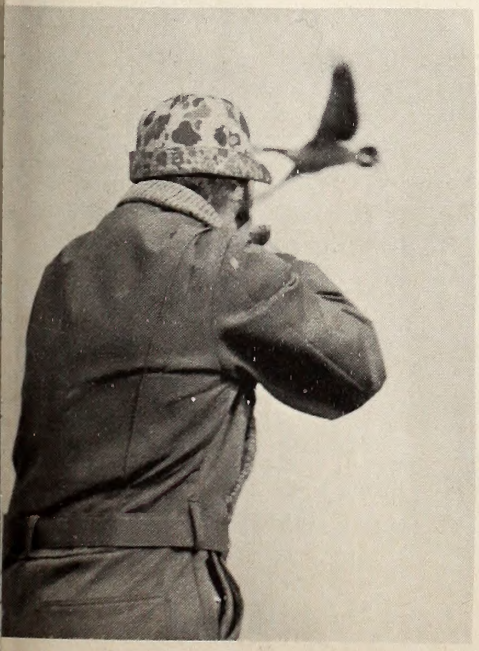
I'll never question Bud's speculation again. All three of us were drinking coffee and talking in low whispers, and if his first whisper had surprised us, the next one electrified us.

"You boys get set," he said. "They're less than a hundred yards out in front and swimming in fast."

Maybe I swallowed the cigarette I was holding; anyway, it disappeared. And I couldn't have set the coffee cup down faster if it had been red-hot. One second I was smoking and drinking coffee—the next second I was gripping the Model 12 and was as taut as a banjo string inside.

"Take 'em!" Bud said, and the jack-in-the-box movement in the blind put the geese into the air before the guns could be leveled.

**The big Canadas look huge over a gun barrel. The author swings on one flushed from the decoys.**



I tumbled a gander swinging to my side, then looked back to see another goose falter, regain its balance and veer in my direction. It took two shots to cartwheel it into the water. One goose was still up, and another, lying on the water, managed to get airborne again and trail the other goose off across the Sound. I couldn't believe that anything could have escaped that volley, until I recalled that all of us were probably loaded for ducks rather than geese. Yet a half a mile away, one goose spun into the water, then the other goose dropped only yards ahead. Bud and Joel were out of the blind and into the skiff before I knew it, grabbed the two downed geese near the blind, then started the motor and headed away to where the others had gone down.

Before they were back to the blind, Bob and I dropped a pair of gadwalls that sneaked up on us as we watched to see if Bud and Joel found the geese. They could have made a clean getaway if they had been watching the blind instead of the decoys. But we saw each other at about the same time, and one shot each by Bob and me put them down cleanly.

ACTION slowed until mid-afternoon. Five blacks worked the decoys for a few swings, but found something not to their liking. A bluebill buzzed us, and managed to stay ahead of the two shots Bob and Joel poured its way. Six cans tempted us with two passes, but the range was too much even for a long shot. Cans take enough killing even when they're close!

Less than an hour of shooting time was left when the birds began to move again, and most of these were flying high. Out in front of us a huge raft of canvasbacks which had been sitting tight all day, rose and momentarily filled the air. A flock of swans, behind us, did the same and looked like a huge white sheet being waved above the water. Overhead the number of ducks and geese moving was unbelievable. And time was almost out for the day.

Bud was in the skiff, preparing to move out to pick up the decoys, and the three of us in the blind were absorbed in watching the flocks of birds. It was a happy twist of fate that he caught a particular motion out of the corner of his eye, because otherwise we'd have been caught flat-footed with our guns down.

I thought he had choked, from the gutteral sounds he produced, but when I turned his way I saw two Canadas, wings set, gliding silently into the decoys. The three of us raised in unison and piled lead their way. This time nothing stirred after it hit the water, and it took me a few seconds to find my voice again.

"Where did they come from?" I asked. "And how did they get so close without seeing us?"

"That I couldn't say," Joel answered, "and I really don't care. But a little more notice would have helped. I almost broke my finger trying to snap off the safety!"

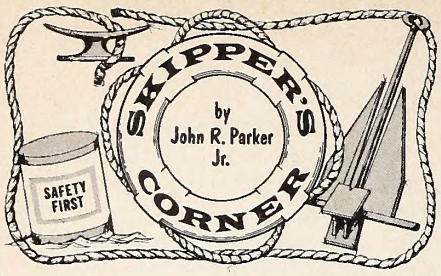
It was already dark before we reached the landing at Poplar Branch. Bud sheared a pin on a submerged snag, and we drifted in the Sound, watching the constant streams of waterfowl, while he fixed it.

And back at Caroland Farms, almost as a final, poetic touch to a perfect day, we sat down to a table of roast duck and goose, along with all of the trimmings. None of us had any trouble handling our share, and then some.

Later, with the lights out in the camper and just as I was drifting off to sleep, Bob suddenly said:

"By the way, Lea, how do you think we all managed to miss that blamed bufflehead?"

"I don't know," I replied sleepily. "I was just thinking about tomorrow. Maybe it will give us another chance!" ◆




TRADITIONALLY, January is a time for resolutions, keeping some, discarding others. Along with resolutions, after Christmas bills, etc., January may be well used as a time of reflection. Relating some experiences from a number of years of boating may be of some value.

Specifically, we will deal with near accidents and incidents and attempts to tie them to some of the basic safety rules heretofore mentioned. Allow me to take the helm and take you on a trip of confessions. As we go, think back and make a similar personal journey.

Since most of my boating involves hunting and fishing, it is on such trips that many of my uneasy moments afloat have occurred.

I recall a Christmas Eve and jump shooting for ducks on the Outer Banks that almost turned into a Christmas day adrift. On the return trip it was decided that a cruise across the inlet, that was calm at the time, would do for a change of scenery. Harmless enough, but how was I to know that water pump failure would leave us adrift on an ebbing tide. Rather than to attempt anchor we decided to strike out for a sand spit. Two paddles aboard enabled my duck hunting partner and I to make the sand spit prior to drifting out the inlet. To shorten the story, three gasoline signal fires brought a Coast Guard patrol boat and Christmas didn't see two duck hunters adrift on the Atlantic. What is the moral? First, the motor was on loan from a dealer who was performing minor maintenance on my own. The loan motor, a used one, had been setting up for some time and the pump impeller had deteriorated. So — know your equipment regardless of type, source, etc. Second, gasoline signal fires have saved many a soul; nothing wrong here but a signal kit would have saved fuel and would have been safer to use.

"Keep a close watch," is a rule of safe boating so obvious that it is probably violated more than most. I have often wondered if the floating pile or telephone pole was visible. My first knowledge of its presence on that cold, windswept river was a noise like an explosion.

A tough lower unit prevented us from being stranded, but bent controls, gasoline tank, and a broken paddle were the result of a motor being forced past the stopping pin. Often I have thought of the damage that the boat might have sustained had the pile been hit at a different angle. Was the pile visible in choppy water? Was I keeping a sharp lookout? As we say, that is water over the dam, but you can believe I am still looking for floating debris.

You have perhaps noticed that the going is a little softer traveling with the waves. And so it was on a trip across a small windswept lake to explore the other side. The small skiff negotiated the chop without problem. I was well offshore on the return trip before noticing that the wind had picked up and that the boat was not riding as well heading into the seas.

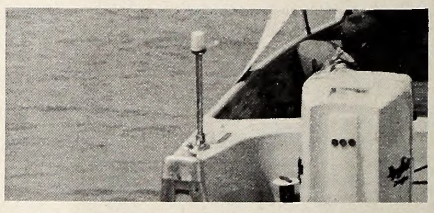
It wasn't long before wishing that I had gone around the shore, the long way. I started to turn back but decided it best not to present the stern to the waves. At any rate, after a long and tiring trip of maneuvering over and through the waves I reached the other side. We won't belabor a boating mistake, but keep in mind that wind velocity usually picks up later in the morning or by mid-day. More important, don't go dashing off across any body of water without sizing up the situation.

Do you know what a two-anchor toss is? That's an expression just coined to fit another little experience that occurred a number of years back. Picture if you will, a pair of duck hunters in a boat, with motor dead, lying downwind of a few dozen bobbing decoys. The temperature is in the teens and there is a hard wind from the shore. The wind was too hard for paddles that time. But that second anchor might work. So by putting one out and tossing the other we managed to make the 100 yards to shore. After thawing out numbed fingers, we tried some field maintenance on the motor and soon had it purring.

Needless to say, we called off the hunt and headed for the landing. What is there to say about this one? Keep the motor tuned. And all of that spare "useless" equipment, such as a spare anchor, just might come in handy someday.

Then there was the time . . . but so much for my mistakes. Confessions in January, safer boating in February could be our slogan. Now that I have revealed a few of my uneasy moments afloat, all I ask is that you do the same. No, you don't have to tell a prospective guest, just admit the errors to yourself and learn from them.

Boating is great so—won't you stay safe in '68?



**Anchor Lights On Class A and 1 Motorboats**

Requirements now are that a vessel under 150 feet in length, when at anchor, shall carry in the *forepart* of the vessel a white light so as to show all around the horizon at a distance of at least two miles. Most boats of classes A and 1 have no light forward and use their 32 point stern light as an anchor light. Since the requirement specifying the "forepart" for boats of these classes is impractical, the U. S. Coast Guard is accepting the 32 point stern light as a proper anchoring light.

# Pick Your Own

**Photo Feature by Tom Jackson**

All too often in this day of well-armed dudes the serious sportsman stumbles across the carcass of a squirrel, a brace of ducks or a string of fish left to rot by the boat dock or in the field because the man who killed them either didn't know or didn't care how to prepare his game for the table.

While cleaning ducks is perhaps not the favorite activity of most sportsmen, there are some who do not find the task completely unbearable. He who chops his own wood, Thoreau said, is twice warmed. Perhaps Thoreau's words might apply, in a slightly different sense, to cleaning game. The serious hunter has much to learn from the experience: by examining stomach or crop contents he can learn a great deal about the feeding habits of the game in the area in which he is hunting; by observing the animal closely while he cleans it the hunter can improve his ability to identify different species at a distance through his first-hand knowledge of body configuration, feather, fur or scale patterns and coloration; by noting shot patterns on the carcass he may learn more about how and when to shoot.

Likewise, he may be introduced to some of the many parasites which prey on game animals. He may note, from a layer of fat, that the game is particularly well-fed in the area where he hunts. He may discover, through an unusually long session with pin feathers, that most of the birds he has shot are young birds. In short, by cleaning his own game the hunter becomes better acquainted with his prey and with the world in which he hunts and lives.

Finally, when he sits to a well spread table of succulent meat and rich gravy, he eats with the satisfaction of a man who has stalked, killed, cleaned and eaten his own game in a ritual nearly as old as man himself.

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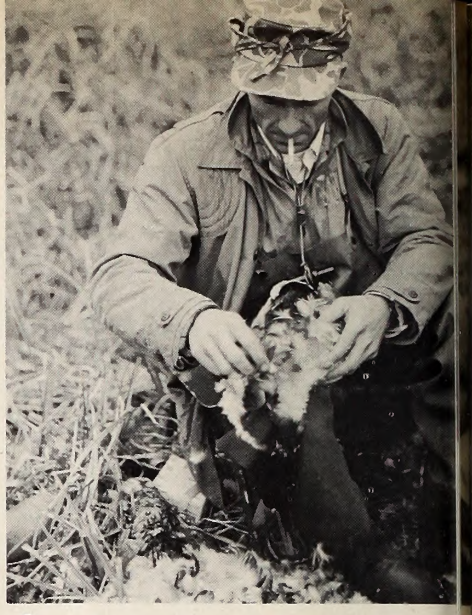

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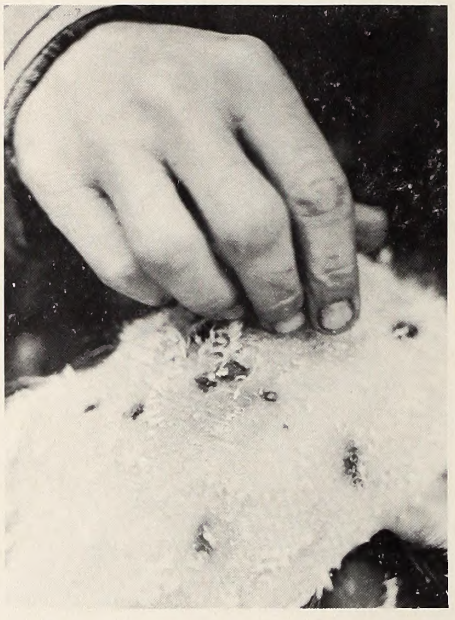

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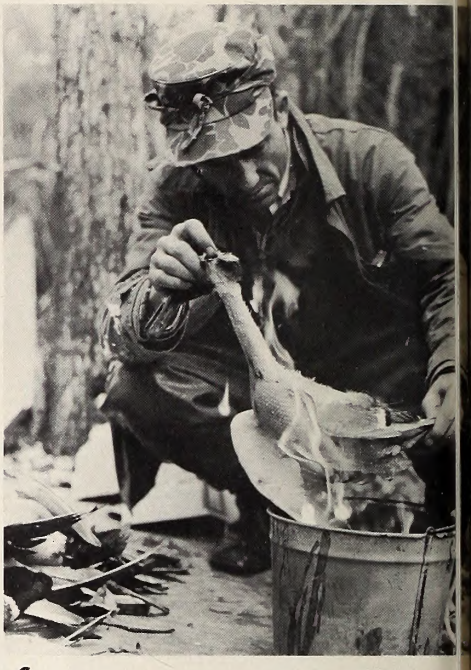

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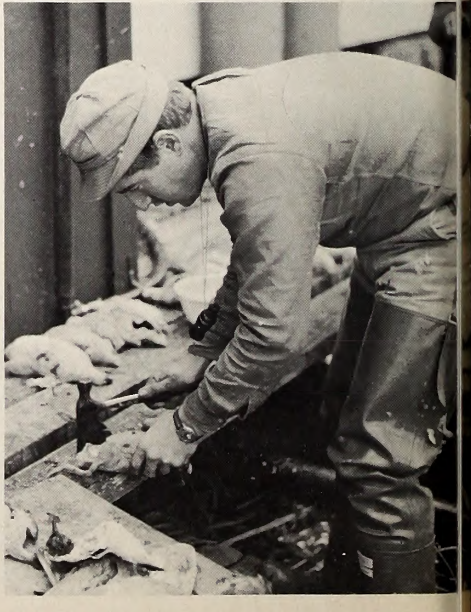

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(2) Over a backyard garbage pail or in the marsh behind your camp, find a place to dispose of feathers and viscera. (3) Grab a handful of feathers and start plucking. Some hunters prefer to dip their birds in hot, soapy water to loosen the feathers. (4) Remove feathers from the entire carcass, including those on the first joint of the wing. (5) Remove as much down as possible and all pinfeathers. A pair of tweezers may help with tight pinfeathers. (6) Light a crumpled sheet of newspaper in a bucket to singe off remaining down. (7-8) Remove the last two joints of the wings, the head with most of the neck and the legs below the drumstick with a knife or hatchet.

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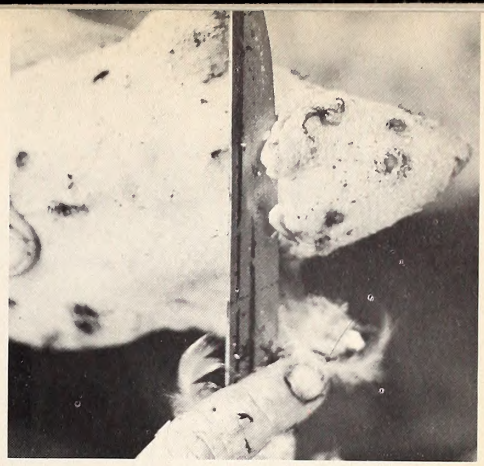

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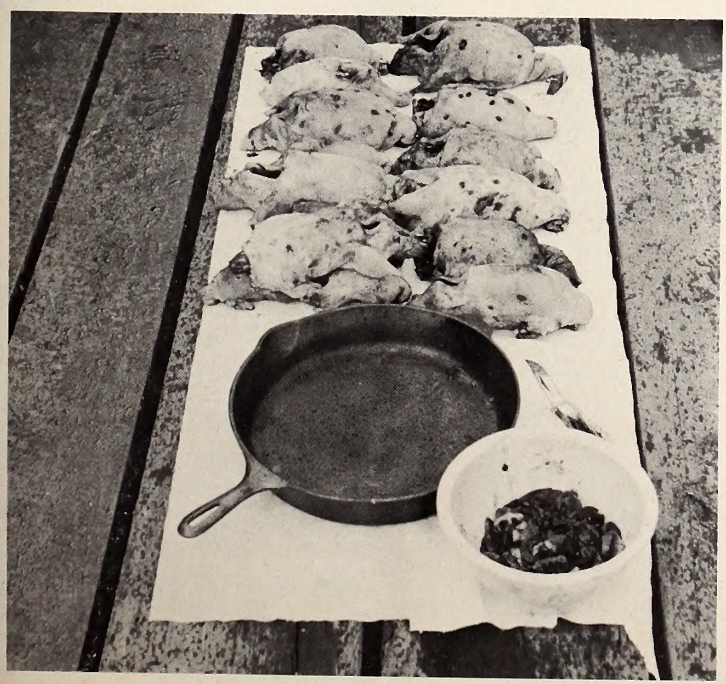


(9-10) Make an incision from the lower tip of the breastbone to the anus. (11) Some hunters prefer to cut straight through the carcass, removing the entire tail section. (12) Remove the entrails, being careful to save the heart, liver and gizzard. (13) Split the gizzard lengthways to (14) remove the grit and undigested food. (15) Wash giblets and carcass, tidy your work area and call for the cook!

# We Challenge You!

by

**Loyd Higgins,**

Area Manager, Sherwood Wildlife Management Area

**Clifford L. Bampton,**

Supervisor, Western Wildlife Management Area

**Wind-driven moisture has formed long, snow-like ice crystals on high altitude vegetation and fences. Rabbit weather.**

THIN layers of ice glisten as the rising sun filters through the brush on one of the high peaks of the Sherwood Wildlife Management Area —Sam Knob. This 6,000-foot mountain stands mute and distant against a sky turning azure blue and the surrounding mountain wilderness dimmed by the mists of a winter morning.

The air is brittle and cold, when suddenly four men appear, moving quietly through the thick brush, clad in heavy hunting coats and carrying shotguns loaded with number 6's. The hunters' keen eyes observe every movement within the thickets, while several hundred feet ahead, a pack of frisky beagles works the rocky ground in search of a scent left by Mr. Cottontail.

The hunters are eager to squeeze their cold-numbed fingers against their triggers. The silence is broken by baying of the excited beagles in pursuit of ole br'er rabbit. As suddenly as a blacksnake slithers over a log, one of the hunters swivels in place and throws his shotgun to his shoulder. The dark blue barrel swings from left to right, emitting a blast that shatters the stillness of dawn and hurls the group of number 6 pellets at the swift-moving target. Before the blast ceases to echo through the coves and valleys, a reddish-gray mountain cottontail lies beneath the frosted leaves of a rhododendron.

Grabbing the warm carcass by the hind legs, the successful hunter holds up the rabbit for his companions to see. This species of the cottontail is known as the New England cottontail (*Sylvilagus transitionalis*) and is somewhat larger than the eastern cottontail (*Sylvilagus floridanus*) commonly found throughout the entire State. Both species exist on the Sherwood area.

Very few sportsmen are aware that this challenging sport exists on Sherwood. Approximately 60 hunters each year combat the steep ridges and mountains of the management area hoping to bag Mr. Cottontail.

On the other hand, Sherwood is well known for it's excellent deer, bear and grouse hunting. Most hunters frequenting this area pack a rifle with a telescopic sight and yearn to squeeze off a round at a big gray-dun animal with a hatrack on one end and a white flag at the other.

However, Sherwood is the only western management area that has a large enough rabbit population to make cottontail hunting a successful venture. While most mountain management areas have a heavy forest cover that harbors squirrels, raccoons, opossums, bears, and deer, Sherwood's upper reaches have an abundance of dense growths of young trees and shrubby vegetation. This growth is the result of widespread logging and fires that denuded the range in 1925 and 1942. When the singed land sprouted with brush and briars, ole br'er rabbit gradually migrated into the area, mostly around Sam Knob and Shining Rock, and he thrives there in harvestable numbers today.

Between 1906 and 1909, Champion Fiber Company (now known as U. S. Plywood-Champion Papers, Inc.) bought the major portion of the land that now makes up the management area. Champion built a pulp mill and tanning extract plant at Canton in 1906 to process the timber from these newly acquired lands. The company also erected a town at Sunburst—located at the junction of Right Prong, Middle Prong, and Left Prong of the

PHOTO BY F. EUGENE HESTER

**A well-earned prize: a fat cottontail. They are even more challenging when pursued over mountain terrain.**

West Fork of the Pigeon River—as a base for timber operations. But these lands contained mostly saw timber and were not meeting the company's need for pulp wood.

In 1911 Champion conveyed these lands to the Champion Lumber Company, which carried on several logging operations. Logging railways were set up and houses were built for employees. The town was later moved to the present site of Lake Logan.

Logging had taken place continually from 1906 until 1926. Cut up and converted into lumber and pulp were vast stands of red spruce, balsam, hemlock and hardwoods. In 1925 a spark from a train locomotive that was hauling timber, started a fire that destroyed more than 25,000 acres of timber. Seventeen years later another fire scorched 5,000 acres in the same area. With it's natural cover wiped away, the mountains were laid open to ravaging floods in later years.

The tract was sold to Sherwood Forest Inc. in 1926. This corporation sold its holdings to the U. S. Forest Service in 1936 and the Sherwood Area became a part of the huge Pisgah National Forest in North Carolina.

Only stumps and a few logs are left on the higher elevations. Herbaceous plants, shrubby vegetation and young trees which now stand higher than a man in some areas, dominate the light green landscape. The cover is made up mostly of rhododendron, mountain laurel, red spruce, Fraser fir, mountain ash, witch-hazel, serviceberry, fire cherry, blueberry, ferns, grasses, and assorted mosses. Among the shrub growth are numerous openings filled with blackberries.

These plants provide food, nesting and escape cover for the bunnies. Blackberry thickets form one of the most important sources for winter food. Rabbits have been observed to cut and consume entire shoots of these plants of which canes of the year are highly palatable. Practically all the previous season's growth in heavy stands of blackberry bushes have been observed to be utilized by cottontails during the course of the winter. Bark, buds and twigs of trees and shrubs are also eaten during the winter months, whereas, during the summer months leaves and fruits of trees, shrubs and vines, and grasses are utilized.

The cottontail population is kept in reasonable check by the animal's natural enemies, mainly two predators. These predators are bobcats and foxes, as well as an occasional hawk. The wild qualities that make rabbits difficult to hit and enjoyable to hunt are the end product of years of predation.

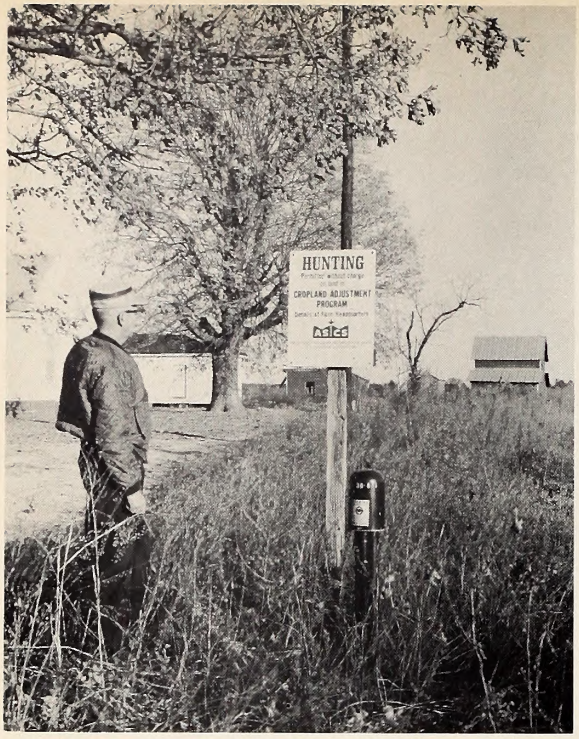
Cottontail hunting is good from sunrise to sunset, except when the weather is foul. Generally rabbits will den up in bad weather, which means that they cannot be flushed as easily by tracking beagles.

Most hunters return from the high country with their daily bag limit of five rabbits. The party of seven hunters with whom we participated, killed 35 bunnies one day two winters ago.

A $3.00 season permit (may be used on any Game Lands Without Checking Stations) or a $5.00 season permit (used on Game Lands Without Checking Stations managed chiefly for big game and may also be used in place of $3.00 season permit) is required in order to participate in small game hunts on Sherwood. On dates scheduled for small game hunts, squirrel, rabbit, quail, grouse, and migratory game may be taken in accordance with applicable statewide season. The major portion of the small game hunts on Sherwood are scheduled in January. This gives hunters an opportunity to hunt long after the deer rifles are greased and stored and bear dogs are tied up.

In preparation for a hunt, each hunter should obtain a copy of the Official Regulations Governing Hunting On Game Lands and become familiar with it.

For a new and challenging sport, and hunting at it's best, try your skill at outwitting ole br'er rabbit on the unusual and scenic Sherwood Wildlife Management Area. ⬍




# Can Hunters Beat The Space Race?

**by Hugh Fields**
Extension Wildlife Specialist
N. C. State University

HOW much land does it take to support one quail—or a deer? The answer varies with different areas, but we have a pretty good idea of the animal-land ratio for many species.

How much land is needed to support one human? We do not know. In the first place, are we talking about subsistence or are we talking about the "good" life? Secondly, a human is not altogether supported by the land immediately surrounding him. He eats corn in the form of pork from Iowa, reads the news printed on pulp from Canada, lives in a home containing lumber from the Pacific Coast, and drives a car burning Texas fuel. Despite these complications, a minimum amount of land is necessary to supply one individual with the necessities and luxuries of life.

Compared to us the fellow of 1900 had it made. In theory, if all the land in the continental United States had been divided equally, each individual would have been entitled to 25 acres. If such a divying-up took place today, each of us could claim only about 10 acres.

What about tomorrow — say 1980? Each of us will have to give up some of our land so yet unborn citizens can have their fair share of seven acres. Let's not talk about the year 2000.

The impact of our race for space (or is it our race to fill up space?) is often brought home to us when we go afield, or when we try to get away from it all. Try communing with nature in the Smokies in July. Elbow your way among the other gunners on a dove field in September.

It takes land to grow crops. It takes acres to produce timber. It takes space to urbanize and industrialize.

It takes land to produce and hunt game — farmland, forest land and wetland. How much of your 10 acres can you devote to game production? Remember, you must also provide much of your food, clothing, fuel and living space, too. Only three of your 10 acres are forest and woodland.

The picture is not so discouraging as it appears. After all, land is not chopped up in little blocks to support each person. We are an urban society where living and working space is concentrated on relatively small areas. We often stack this space vertically rather than spread it out horizontally. In any case, the result of our concentration of population is that we do have large areas of low population—farmland, open spaces and wild land. Of course, these areas are constantly shrinking under the onslaught of more people and technological advances.

We hear a lot of complaining about "no place to hunt," "too many hunters," "everything's posted," and the rest. These are often valid complaints. They are also the result of our not looking ahead and working out ways of insuring adequate acres for hunting.

The complaints are not new. They were around at least 50 years ago. The problems are more acute now, but each generation has felt the pinch of more hunters on less land. Each generation has longed for the good old days of its youth.

IF the hunter has problems, so does the landowner and land manager. He is under constant pressure to provide land for the hunter. He is sympathetic, but he must protect his own interests. The landowner uses his land to make a living, and hopefully a profit. His primary interest is monetary gain through well-or-

ganized production in a highly competitive business. If he is to survive he must operate on an efficient, business-like basis. The days of easy-going farming and forestry are gone.

Whenever we look for solutions to the so-called landowner-sportsman problem, we always wind up with the same set of basic facts: 1) The State (you, me, everybody) owns the game, 2) The private landowner determines whether or not we have an opportunity to hunt that game on his land, 3) There must be some worthwhile incentive before the landowner lets us hunt his land.

"Incentive" is a polite word for economic gain, more crudely called "making money." Many of us frown on the idea of putting a price tag on doves or quail or ducks. We still like to think of game as being a free good. Yet, we do not hesitate to buy a 200-dollar shotgun or a 300-dollar bird dog to hunt that "free good."

Paying for hunter access is identical to buying a gun. The price tag is not on the game; it's on the access privilege.

Make no mistake about it, pay hunting is with us and it is here to stay. The Cropland Adjustment Program of the Agricultural Stabilization and Conservation Service provides "free" public hunting on private land through its Cropland Adjustment Program. (See page 20, this issue) If the owner of diverted cropland allows public access, without charge, to hunters, fishermen, hikers, and trappers, he is eligible for extra incentive payment.

THE Public Hunting Area program of the Wildlife Resources Commission is a welcome form of pay hunting. Hunting rights on private lands are leased by the Commission. In turn the hunter buys a special season permit to hunt these private lands. This is a sensible and successful approach to pay hunting. The hunter who uses the public hunting area pays the bill.

Charging for hunting has been practiced in North Carolina for a long time. Leasing is fairly common in deer and waterfowl country. It is becoming more and more prevalent in small game country near population centers. Leasing is a mixed blessing. It provides the group with an assured place to hunt. It provides the landowner with a readily determined amount of income and relieves him of much of the administration involved in controlling hunters. It does nothing to provide hunting for the non-club member. Another aspect of hunt-club leasing is that the typical club tends to underhunt its land. There is usually more surplus game on the land than the membership can or will adequately hunt.

Daily fee hunting is beginning to develop near cities, especially for high-density type shooting such as dove shooting. Landowners are charging for shooting for other reasons besides cash: 1) They are overrun with prospective hunters every season, 2) They realize that posting is no solution, 3) They want to maintain control over the numbers and whereabouts of the hunters.

At the moment, there are two main problems involved in lease or fee hunting. One is to encourage more landowners to take advantage of this opportunity and at the same time improve the game habitat on their land. The other is to develop charge rates that are fair to the hunter and the landowner. Perhaps these will work themselves out in time.

The upshot is that we can provide reasonably adequate hunting for years to come on our present supply (or even a lesser supply) of private hunting land. In order to do so we have to realize that game on private lands can often be economically produced as a secondary crop. The hunter must realize that he must pay his way for his hunting privilege. The landowner must provide reasonable sport for the amount charged.

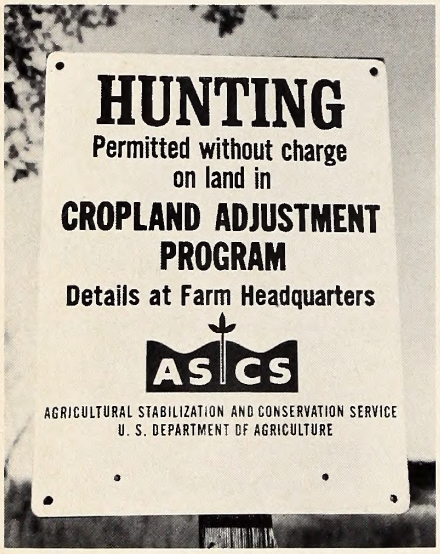
I used to worry about the future of small game hunting. All I could see in my crystal ball were myriads of posted signs and a few privileged hunters enjoying their sport. A while back, I watched a few score eager dove hunters register for an afternoon's shoot. They laid down their money and received their permits. They were happy and the landowner looked contented. Some of the hunters were paying their way for the third or fourth shoot of the season.

My crystal ball looks brighter now. We are still feeling our way as far as pay hunting goes. But, I believe we are on our way to A-OK as far as the space race for hunting is concerned. ◆

**"This looks like a good place to hunt."**

# Cropland Adjustment Program

by Charlie Woodhouse
Wildlife Biologist




MR. Sportsman, when you see one of these signs at the entrance to a farm it means you are welcome to enjoy the privilege of hunting on these lands. This should help ease the pain some folks feel when they pay taxes to help support the "farm programs from which they receive no benefit." Many of the government farm programs benefit wildlife—and the sportsman—indirectly, but the Cropland Adjustment Program has a *direct* benefit. Not only are practices applied to enhance these lands for wildlife, but they are open to the general public to hunt free of charge.

What is the Cropland Adjustment Program?

The CAP, as it is called, is designed to help farmers make a direct attack on the overproduction of allotted crops.

What does it mean to me?

If you are a landowner, the CAP means the U. S. Department of Agriculture will (1) make an annual payment for diverting at least one allotted crop, and (2) provide cost-share assistance to establish wildlife practices. If you are a taxpayer, it means that part of the tax you now pay to support prices on crops being produced in surplus quantities will be spent instead on paying farmers to produce less—and put these acres into conservation practices for periods of five to ten years.

To the sportsman, it means the farmer will be producing more game on these diverted acres through wildlife food and cover plantings. And he can receive an extra incentive payment for making land available for public hunting.

During 1966 and 1967, 72 landowners received this incentive payment on some 2756 acres of land which they opened for public hunting. These are CAP contract acres which is all that is required to be open to the public. However, most of the landowners contacted by Wildlife Commission biologists indicated their entire farm would be available for hunting. This means that many times the CAP acreage is actually potential hunting territory. For instance, in 1966 in Cumberland County 12 landowners placed 412.3 acres under contracts to receive the extra incentive payment. However, they indicated that a total of 2,233 acres would be added to lands open for the general public to hunt.

Following is a listing by counties of lands which have been signed up to date under the public access agreements.

| Name and Address | Acres of Cropland | Designated CAP Acreage |
|---|---|---|
| **BLADEN COUNTY** | | |
| Carl Bryan<br>White Oak | 124 | 71.17 |
| **CLAY COUNTY** | | |
| Richard Bristol<br>Route 4<br>Hayesville 28904 | 97 | 24.45 |
| Joe May<br>Hayesville 28904 | 10 | 9.7 |
| **CLEVELAND COUNTY** | | |
| Morris Blalock<br>Route 1, Mooresboro | 85.3 | 85.0 |
| John Lovelace, Jr.<br>R-1, Mooresboro | 12.8 | 12.8 |
| Marvin Lutz<br>R-3, Lawndale | 105.0 | 57.2 |
| Max E. Burgin<br>2409 Dickey Rd.<br>Augusta, Ga. | 41.2 | 19.9 |
| Mrs. Jerry Gerrard<br>R-1, B-I 271, Charlotte | 39.3 | 28.3 |
| Thomas Strickland<br>% Anson Co. Health Dept.<br>Wadesboro | 24.9 | 15.7 |
| Corene Blanton<br>R-2, B-229, Shelby | 37.5 | 17.8 |
| P. C. Huffstetler<br>R-3, Kings Mountain | 60.1 | 42.8 |
| Mrs. Mildred Royster<br>R-2, Lawndale | 33.3 | 28.9 |
| C. M. Peeler, Jr.<br>821 W. Warren St., Shelby | 84.1 | 76.7 |
| Charles W. Hamrick<br>4831 Winchelsen Rd.<br>Winston-Salem | 74.4 | 50.1 |
| Edward White<br>B-137, Casar | 8.3 | 7.0 |
| Mrs. Lula R. Davis<br>R-2, B-430, Shelby | 26.7 | 10.7 |
| E. G. Clark<br>R-1, Shelby | 58.6 | 58.1 |
| W. E. Carroll<br>R-2, Lawndale | 49.8 | 36.3 |
| Mrs. Emma Lee<br>R-1, Lawndale | 41.6 | 20.8 |
| Mrs. C. S. Elliott<br>Fallston | 60.4 | 60.3 |
| Hassell Beam<br>Fallston | 88.3 | 64.9 |
| B. T. Lemons<br>R-2, Shelby | 38.1 | 31.9 |
| Vera W. Spangler<br>R-5, Shelby | 123.7 | 60.6 |
| Lyda Poston<br>R-5, Shelby | 26.4 | 19.7 |
| E. Y. Harrill<br>R-4, Shelby | 71.1 | 65.6 |
| Dan F. Gold<br>R-5, Shelby | 130.7 | 76.4 |
| William Cabaniss<br>R-5, Shelby | 62.3 | 41.8 |
| Ralph Spangler<br>R-1, Lawndale | 251.7 | 56.6 |
| Ralph Spangler<br>R-1, Lawndale | 43.9 | 21.5 |
| O. V. Warlick<br>R-3, Lawndale | 86.2 | 63.9 |
| Irene Whitesides<br>R-3, Shelby | 101.2 | 60.6 |
| Betty J. Ivester<br>206 Palmer St., Shelby | 42.1 | 39.6 |
| T. V. Palmer<br>Polkville | 133.7 | 60.6 |
| A. B. Hamrick<br>R-1, Mooresboro | 81.8 | 43.1 |
| Fields and Ruth Young<br>Shelby | 94.7 | 77.7 |
| Shelby Mortgage Development Corp.<br>125 North Morgan St.<br>Shelby | 73.4 | 55.0 |
| Joe Z. Blanton<br>R-5, Shelby | 107.9 | 58.4 |
| S. Frank Pruett<br>Casar | 38.5 | 27.5 |
| Mrs. Louise Shull<br>610 N. Dekalb St., Shelby | 56.9 | 36.8 |
| Roselle J. Varner<br>R-1, Grover | 43.3 | 36.6 |
| Fred D. Mintz<br>R-1, Lawndale | 106.7 | 75.3 |
| Mrs. Willie L. Roberts<br>R-1, Grover | 80.5 | 29.8 |
| B. Austell Hatchery<br>Thomas Austell, Mgr., Earl | 175.3 | 38.8 |
| A. A. Barrett<br>R-1, Shelby | 95.4 | 36.1 |
| Oeland Humphries<br>R-4, Shelby | 51.7 | 42.1 |

| Name and Address | Acres of Cropland | Designated CAP Acreage |
|---|---|---|
| **CUMBERLAND COUNTY** | | |
| Mannie E. Gardner<br>Rt. 1, Box 53,<br>Roseboro 28382 | 42 | 19.7 |
| Frank Simpson<br>Rt. 1, Roseboro 28382 | 55 | 29.5 |
| Beatrice M. Smith<br>Rt. 1, Box 130,<br>Roseboro 28382 | 27 | 17.5 |
| Gary L. Smith, Adm.,<br>R. Tate Smith Est.<br>Rt. 1, Roseboro 28382 | 58 | 36.0 |
| Lula Mae Smith<br>Rt. 1, Box 169,<br>Roseboro 28382 | 20 | 4.0 |
| G. E. Bullard<br>Rt. 1, Box 197<br>Wade 28395 | 318 | 26.7 |
| Willard McLamb<br>Rt. 2, Dunn 28334 | 63 | 13.4 |
| J. R. Bullard<br>Rt. 1, Box 188,<br>Wade 28395 | 188 | 84.3 |
| Howard E. Mason<br>Rt. 1, Box 133A.<br>Wade 28395 | 13 | 12.5 |
| J. E. Jackson<br>Rt. 1, Box 191,<br>Wade 28395 | 157 | 39.0 |
| Mamie Byrd Crumpler<br>501 Orange Ave.,<br>Dunn 28334 | 300 | 65.8 |
| W. E. Giles<br>Rt. 1, Box 118,<br>Linden 28356 | 117 | 49.6 |
| J. M. Tew<br>Linden 28356 | 108 | 20.5 |
| Lacy McBryde<br>Howard Ave. Ext. Rt. 3,<br>Box 184C, Tarboro 27886 | 42 | 19.7 |
| C. A. Strickland<br>Box 234, Linden 28356 | 160 | 45.1 |
| Mrs. Lillian G. Price<br>119 Park Ave.,<br>Raleigh 27605 | 69 | 22.1 |
| William S. Wellons<br>Box 793,<br>Spring Lake 28390 | 31 | 25.4 |
| C. T. Brisson<br>R-2, St. Pauls 28384 | 106 | 5.4 |
| S. J. Hair, Jr.<br>R-2, Fayetteville 28301 | 135 | 48.8 |
| A. B. West<br>R-5, Box 277,<br>Fayetteville 28301 | 39 | 20.0 |
| Bunny W. Cash<br>R-9, Box 491,<br>Fayetteville 28301 | 13 | 2.1 |
| L. D. Minges<br>% Pepsi Cola Co.,<br>Fayetteville 28301 | 149 | 41.0 |
| Dennis McNair<br>R-5, Box 242,<br>Fayetteville 28301 | 6 | 2.4 |
| Duncan Whitted, Jr.<br>R-1, Box 132,<br>White Oak 28399 | 7 | 1.6 |
| Stacy Jones<br>R-1, Box 185,<br>Stedman 28391 | 31 | 24.0 |
| Billy & Tommy Horne<br>R-1, Box 133<br>Stedman 28391 | 140 | 102.5 |
| Luther Horne<br>R-1, Stedman 28391 | 23 | 1.9 |
| Mable H. Williford<br>R-1, Box 84,<br>Fayetteville 28301 | 56 | 19.6 |
| R. E. Crumpler<br>R-9, Box 362<br>Fayetteville 28301 | 155 | 56.3 |
| Violet B. Bulla<br>R-9, Box 385,<br>Fayetteville 28301 | 47 | 12.0 |
| Mary Q. Pope<br>R-1, Wade 28395 | 113 | 16.0 |
| James D. Warren<br>R-1, Wade 28395 | 82 | 25.7 |
| Mable H. Williford<br>R-1, Box 84,<br>Fayetteville 28301 | 6 | 2.2 |
| Ethel M. Holmes<br>R-1, Box 15, Wade 28395 | 44 | 15.1 |
| J. Bernard Stein<br>Capitol Dept. Store<br>Fayetteville 28301 | 58 | 22.2 |
| James R. McPhail<br>Box 11, Wade 28395 | 20 | 11.3 |
| Ethel Lee Jones<br>R-2, Box 94,<br>Fayetteville 28301 | 39 | 20.5 |
| J. W. Cain<br>R-1, Fayetteville 28301 | 13 | 7.2 |
| Elsie N. Canady<br>R-1, Box 300,<br>Hope Mills 28348 | 88 | 69.5 |
| J. B. Little<br>R-7, Box 204,<br>Fayetteville 28306 | 30 | 15.8 |
| T. S. Smith<br>R-1, Hope Mills 28348 | 40 | 2.9 |
| A. A. Townsend<br>R-1, Parkton 28371 | 49 | 24.5 |
| Cindy B. Freeman<br>R-7, Box 116,<br>Fayetteville 28306 | 24 | 15.2 |
| W. R. Baxley<br>321 Covington St.,<br>Laurinburg 28352 | 11 | 10.3 |
| Bessie Baxley<br>321 Covington St.,<br>Laurinburg 28352 | 9 | 8.8 |
| R. P. Fisher<br>Box 601, Hope Mills 28348 | 83 | 21.9 |
| Mrs. E. W. Carver<br>R-9, Box 82,<br>Fayetteville 28301 | 38 | 21.9 |
| Earl D. McKinnon<br>Cumberland 28331 | 52 | 19.7 |
| S. J. Hodges<br>1103 Ross Ave.,<br>Greensboro 27406 | 137 | 33.6 |
| Hattie Patterson<br>R-2, Box 25, Parkton 28371 | 12 | 4.9 |
| Ross H. Lewis<br>R-3, Box 548,<br>Fayetteville 28306 | 67 | 31.0 |
| Anna Mae L. Hall<br>c/o Mrs. Bob Gulickson,<br>1942 Roxie Ave.,<br>Fayetteville 28304 | 4 | 2.3 |
| Mary D. McInnis<br>R-3, Box 572,<br>Fayetteville 28306 | 41 | 20.3 |
| Mattie A. Newton<br>R-4, Box 318,<br>Fayetteville 28305 | 56 | 35.0 |
| Grace M. Parker<br>R-3, Box 452,<br>Fayetteville 28306 | 106 | 80.5 |
| Paul Thompson<br>Box 1690,<br>Fayetteville 28302 | 83 | 76.1 |
| Thomas Wood<br>501 Edinburgh Rd.,<br>Fayetteville 28303 | 24 | 22.5 |
| Verdie K. Lee<br>R-3, Box 434,<br>Fayetteville 28306 | 33 | 23.3 |
| Gordon B. & J. A. Newton<br>R-4, Box 326,<br>Fayetteville 28304 | 44 | 43.7 |
| Tom McLean<br>Box 1690,<br>Fayetteville 28302 | 33 | 32.8 |
| **CRAVEN COUNTY** | | |
| H. D. Fulcher<br>Box 505, Bridgeton | 68 | 5.8 |
| Graham Merritt<br>Dover | 116 | 43.9 |
| George Griffin<br>Rose Hill | 36 | 18.0 |
| **DUPLIN COUNTY** | | |
| J. D. West<br>R-2, Warsaw | 68 | 40 |
| R. G. Quinn<br>R-1. Kenansville | 58 | 37 |
| Hall Branch<br>R-1. Kenansville | 104 | 50 |
| G. A. Phillips<br>Warsaw | 41 | 30 |
| Orzo Thigpen<br>R-2, Beulaville | 68 | 45 |
| Harry L. Phillips<br>R-2, Warsaw | 105 | 41 |
| R. G. Quinn<br>R-1, Kenansville | 26 | 14 |
| R. G. Quinn<br>R-1, Kenansville | 157 | 127 |
| Dallas Jones<br>Magnolia | 131 | 70 |
| **EDGECOMBE COUNTY** | | |
| Lacy McBryde<br>R-3, Box 184C, Tarboro | 82 | 15 |
| Louise B. Bryan<br>By W. D. Bryan, Agt.<br>Tarboro | 34 | 33 |
| **FORSYTH COUNTY** | | |
| Van H. Johnson<br>R-6, Kernersville | 62 | 25 |
| **GASTON COUNTY** | | |
| Emily B. Quinn<br>R-2, Clover, S. C. 29710 | 63.0 | 37.0 |
| Forrest F. Allen, Jr.<br>Box 454, Lincolnton 28092 | 91.0 | 77.2 |
| Grady Beam<br>R-2, Box 250<br>Bessemer City 28016 | 50.0 | 24.9 |
| Ishmael Beam<br>R-1, Cherryville 28021 | 34.0 | 25.7 |
| **HALIFAX COUNTY** | | |
| T. B. Moss & Son<br>% D. S. Moss<br>R-2, Enfield 27823 | 705 | 120.0 |
| Booker T. Marrow<br>R-1, Box 118A<br>Halifax 27839 | 174 | 116.1 |
| R. C. Shields<br>Scotland Neck 27874 | 159 | 142.18 |
| **IREDELL COUNTY** | | |
| Harold A. Barnett<br>R-1, Troutman 28166 | 36 | 14 |
| R. V. Miller<br>546 N. Center Street<br>Statesville 28677 | 163 | 127 |
| Ernest Hostetler<br>R-8, Statesville 28677 | 99 | 74 |
| Mrs. Louise Barnhardt<br>Cleveland 27013 | 13 | 11 |
| Samuel Wyatt Neel & Margaret<br>N. Grant, Exec.<br>R-2, Box 748, Mooresville | 71 | 52 |
| J. F. London<br>R-1, Mt. Ulla 28125 | 64 | 42 |
| J. M. McConnell<br>R-4, Box 134<br>Mooresville 28115 | 171 | 18 |
| C. T. Shinn, Jr.<br>R-4, Box 77<br>Mooresville 28115 | 93 | 61 |
| Kenneth Benfield<br>Mt. Ulla 28125 | 15 | 14 |
| Mrs. Virginia B. Alexander<br>117 N. Mulberry Street<br>Statesville 28677 | 69 | 57 |
| John R. Morrison, Jr. and<br>W. E. Morrison<br>R-2, Statesville 28677 | 112 | 91 |
| Miss Dalice Harmon<br>R-1, Olin 28660 | 82 | 28 |
| V. E. Harmon<br>R-1, Olin 28660 | 69 | 24 |
| W. H. Weisner<br>R-5, Statesville 28677 | 69 | 38 |
| C. R. Goodman, Jr.<br>R-2, Cleveland 27013 | 93 | 76 |

| Name and Address | Acres of Cropland | Designated CAP Acreage |
|---|---|---|
| **JOHNSTON COUNTY** | | |
| W. H. Godwin<br>R-1, Selma | 79 | 72.46 |
| Malissa O. Godwin<br>R-1, Selma | 40 | 37.50 |
| Johnnie B. Oneal<br>R-1, Selma | 57 | 28.40 |
| Robin H. Oneal<br>3240 Glen Carlyn Rd.<br>Falls Church, Va. | 36 | 22.40 |
| Audrey Oneal<br>327 50th Street<br>Newport News, Va. | 42 | 26.65 |
| Onnie Narron<br>R-1, Middlesex | 94 | 50.70 |
| Wallace O. Godwin<br>1504 Hawthorn Street<br>Goldsboro | 5 | 4.56 |
| **LINCOLN COUNTY** | | |
| Jack Baxter<br>R-1, Cherryville | 188 | 69.4 |
| R. C. Hull<br>R-1, Cherryville | 77 | 60.1 |
| **MACON COUNTY** | | |
| Sammy Beck<br>R-5, Franklin 28734 | 66 | 16 |
| **NASH COUNTY** | | |
| T. V. Avent<br>R-4, Box 117<br>Rocky Mount 27801 | 76 | 57 |
| C. E. Deans<br>R-1, Battleboro 27809 | 577 | 116 |
| Joseph S. Deans<br>R-2, Battleboro 27809 | 196 | 25 |
| W. R. Williams<br>Nashville 27856 | 33 | 33 |
| **NORTHAMPTON COUNTY** | | |
| Sarah E. Baugham<br>Rich Square 27869 | 20 | 20.0 |
| Nell H. Beale<br>Jackson 27845 | 220 | 202.9 |
| E. T. Bradley<br>St. Rt. Box 89<br>Roanoke Rapids 27870 | 69 | 47.9 |
| W. C. Brown<br>RFD 1, Rich Square 27869 | 18 | 17.8 |
| Judson J. Carter<br>Woodland 27897 | 53 | 52.8 |
| Gay Flythe<br>Conway 27820 | 141 | 30.4 |
| H. F. Holoman<br>R-1, Box 72A<br>Rich Square 27869 | 98 | 41.2 |
| Garnett L. Jenkins<br>2206 Queen Street<br>Portsmouth, Va. 23704 | 29 | 28.2 |
| Sam W. Lehew<br>854 Garden Dale Drive<br>Columbia, S. C. 29210 | 34 | 33.6 |
| Polly B. Mabry<br>347 N. Dennison St.<br>Baltimore, Md. 21229 | 9 | 8.4 |
| Hattie Martin<br>Conway 27820 | 46 | 29.7 |
| George Norwood<br>Pleasant Hill 27866 | 26 | 6.2 |
| E. M. Outland<br>Woodland 27897 | 56 | 56.0 |
| Mildred B. Page<br>Halifax 27839 | 30 | 30.1 |
| John W. Parker<br>Woodland 27897 | 17 | 16.8 |
| H. E. Robertson<br>1308 East 9th St.<br>Roanoke Rapids 27870 | 49 | 46.2 |
| Robert Lee Vincent<br>St. Rt., Box 88<br>Roanoke Rapids 27870 | 4 | 3.2 |
| Robert Lee Vincent<br>St. Rt., Box 88<br>Roanoke Rapids 27870 | 11 | 10.1 |
| **PENDER COUNTY** | | |
| Astor R. Sloan, Jr.<br>526 Raleigh Rd.<br>Wallace 28466 | 25 | 23.4 |
| Peter Debaylo<br>R-1, Burgaw 28425 | 6 | 1.6 |
| Evana Willie<br>436 N. McRae Street<br>Wilmington 28401 | 11 | 10.6 |
| Arnold Cowan<br>Maple Hill 28454 | 320 | 133.1 |
| David F. Jackson<br>R-1, Currie | 20 | 17.1 |
| **POLK COUNTY** | | |
| Rowena M. Mayson<br>519 East Main St.<br>Spartanburg, S. C. 29301 | 78 | 78 |
| Agnes McDade<br>R-1, Tryon 28782 | 11 | 11 |
| J. W. McDowell<br>R-1, Campobello, S. C. 29322 | 31 | 25 |
| Mattie Lancaster<br>112 Fernwood Drive<br>Rutherfordton 28139 | 29 | 27 |
| G. V. Davidson<br>R-1, Chesnee, S. C. 29323 | 35 | 34 |
| Grace B. Swain<br>R-1, Campobello, S. C. 2 | 19 | 16 |
| G. W. Rollins<br>R-1, Mill Springs 28756 | 20 | 16 |
| Kyle Fagan<br>R-1, Campobello, S. C. 29322 | 102 | 70 |
| T. E. Swain<br>R-1, Campobello, S. C. 29322 | 74 | 67 |
| Madgalene Jackson<br>R-1, Landrum, S. C. 29356 | 10 | 7 |
| Dezzie Fagan<br>R-1, Campobello, S. C. 29322 | 28 | 26 |
| Gam E. Gosnell<br>R-1, Campobello, S. C. 29322 | 53 | 13 |
| Nora Blackwood<br>R-1, Campobello, S. C. 29322 | 70 | 12 |
| Martha H. Morgan<br>45 East Bay St.<br>Charleston. S. C. | 20 | 19 |
| **ROWAN COUNTY** | | |
| B. L. Chapman<br>R-3, Kannapolis 28081 | 17 | 7.5 |
| Mrs. Kate M. Gray<br>R-1, Cleveland 27013 | 44 | 14.6 |
| **RUTHERFORD COUNTY** | | |
| C. C. Bridges<br>R-1, Ellenboro 28040 | 45 | 10.2 |
| Roy Hoppes<br>R-1, Ellenboro 28040 | 9 | 7.7 |
| Olna G. Price<br>R-1, Ellenboro 28040 | 100 | 15.3 |
| T. D. Flack<br>1115 S. Church St.<br>Forest City 28043 | 21 | 21.0 |
| Oma H. Jones<br>R-3, Shelby 28150 | 40 | 37.2 |
| Henry Melton<br>250 Tanner St.<br>Rutherfordton 28139 | 9 | 8.4 |
| B. M. Strickland<br>R-1, Mooresboro 28114 | 34 | 32.0 |
| Eunice F. McKinney<br>2742 Inverness Rd.<br>Charlotte 28208 | 114 | 68.9 |
| Charles V. James<br>Box 236, Caroleen 28019 | 76 | 14.6 |
| Virgie T. Scruggs<br>R-1, Forest City 28043 | 43 | 40.8 |
| A. N. Henderson<br>R-3, Forest City 28043 | 37 | 15.0 |
| Garland Bowen, Jr.<br>R-4, Shelby 28150 | 49 | 28.6 |
| Georgia M. Peeler<br>R-1, Mooresville 28114 | 26 | 12.3 |
| C. W. Lewis<br>R-2, Union Mills 28167 | 37 | 20.8 |
| A. C. Spratt, Jr.<br>R-2, Ellenboro 28040 | 83 | 45.8 |
| Pauline S. Pollard<br>c/o A. C. Spratt<br>R-2, Ellenboro 28040 | 49 | 29.9 |
| J. L. Thompson<br>R-5, Rutherfordton 28139 | 51 | 44.8 |
| D. E. Digh<br>R-1, Bostic 28018 | 14 | 8.1 |
| J. R. Jones, Jr.<br>R-4, Rutherfordton 28139 | 55 | 32.0 |
| B. E. Holland<br>Caroleen 28019 | 220 | 53.4 |
| H. E. Whisnant<br>R-2, Mooresboro 28114 | 172 | 44.7 |
| Walter M. Hopper<br>R-3, Forest City 28043 | 6 | 4.4 |
| Inez H. Spratt<br>R-2, Ellenboro 28040 | 18 | 11.0 |
| Raleigh M. Spratt<br>R-2, Ellenboro 28040 | 69 | 43.0 |
| **SAMPSON COUNTY** | | |
| Robbie A. Spell<br>R-1, Roseboro | 20.4 | 18.72 |
| R. A. Spell<br>R-1, Roseboro | 48.2 | 24.97 |
| Aline Spell<br>R-1, Roseboro | 41.8 | 22.3 |
| David L. Gilbert<br>Box 68,<br>Myrtle Beach, S. C. | 53.5 | 40.83 |
| W. L. Gilbert<br>Box 120, Smithfield | 52.4 | 35.97 |
| William S. Wellons<br>Box 793, Springlake | 70.9 | 35.02 |
| Robert A. Merritt<br>Box 117, Kenansville | 57.9 | 30.0 |
| **TRANSYLVANIA COUNTY** | | |
| Otto Alexander<br>R-1, Brevard | 183 | 65 |

**Fields allowed to grow up in grasses and other low vegetation provide nesting and escape cover for wildlife. Add a few food patches here and there, and you have the basis for some fine upland game habitat.**

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Patrolmen Added For Boating Safety

The Wildlife Resources Commission's staff of wildlife protectors will be increased by nine patrolmen, one for each of the Commission's nine districts. These will come from field promotions, and will go a long way to increase the time and effort spent on boating safety law enforcement and education. The Commission will establish inspection and training teams during the boating season. Vacancies created will be filled by newly-trained men.

### WILDLIFE Reaches Another Peak

With this issue, Wildlife in North Carolina will have a circulation of slightly more than 110,000 per month, ranking it the top monthly magazine produced within the state.

### Fishing Licenses and Permits, Regulations in Effect

The 1968 fresh water fishing regulations have been published and distributed to license dealers throughout the state, along with fishing licenses that go into effect January 1. Combination hunting-fishing licenses are valid until August 1, 1968.

### No Fishing Permits at Checking Stations

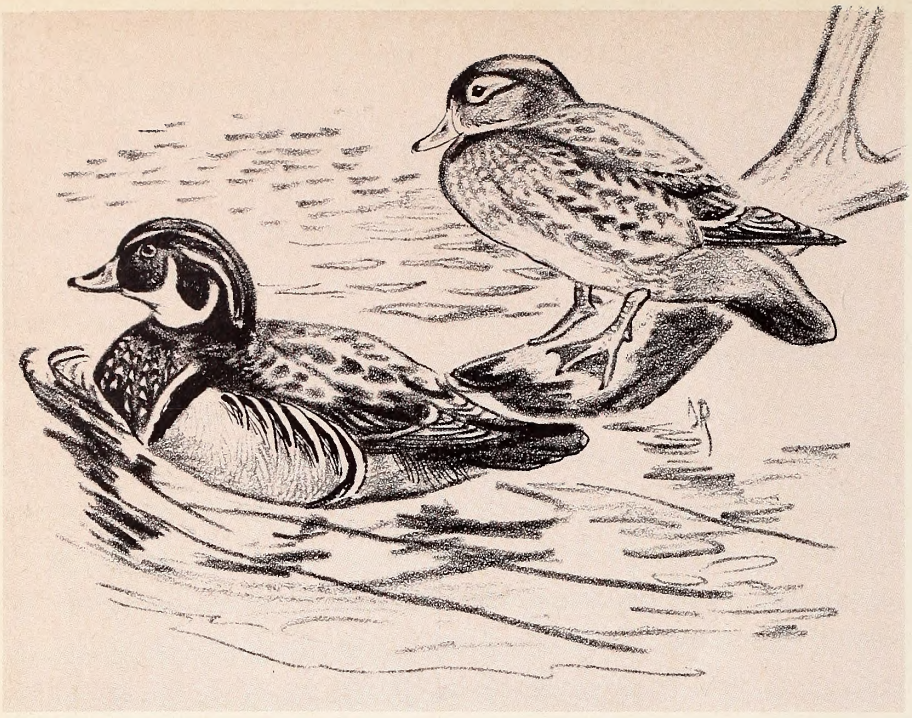
Anglers fishing on wildlife lands effective January 1 will no longer be able to buy their permits at checking stations. Instead, they must be purchased at regular license dealers. Special management area daily permits will cost $1.65 in western management areas, and a season permit for these lands will cost $15.25. This is valid statewide. In central and eastern game lands a season permit costing $3.25 may be used, but is not valid on western management areas.

### Migratory Game Bird Seasons Close in January

The season on ducks, coots, mergansers, gallinules and Wilson's snipe closes January 6, doves, geese and brant January 13, and woodcock on January 20.

### Boat Registration Time

All persons who registered boats in 1967 have been notified their certificates expire December 31, and must be renewed to operate boats legally January 1. Just over 59,000 boats were registered in 1967, and 1968 should see a registration of well over 60,000.



# The Wood Duck

**by Lunette Barber**

THE wood duck is truly the "sweetheart of the fleet." He does not quack or even walk like other ducks. He even has a "fulutin" name—*Aix,* Greek, a kind of waterfowl in Aristotle; *sponsa,* Latin, meaning betrothed, as if in wedding dress, referring to the beautiful plumage. He along with his friends the teal are the only river and pond ducks with yellow feet.

Wood ducks are present in fair numbers throughout the Tarheel State, but are more common in the central and low country of North Carolina. Though migratory, some are to be seen year around. Those that nest here in summer may move on in autumn and others come in to take their places. Because of this, many people know the birds as the "summer duck."

The male wood duck is the most beautifully colored of all our waterfowl in North Carolina. The plumage of the male and female is quite different. The crowned head of the male is metallic green and bronze in front, and blue, purple, green, and black in the back. There are contrasting dark and white markings on the chin, throat, neck and sides of the body. His breast is chestnut colored and his iridescent wings and body markings give a striking appearance. The female is generally brownish in color, but is easily identified by the white ring around the eye that leads into a noticeable tear drop shape. Both sexes may be recognized in flight because of the square tail.

Never is this species absent from the state. The margins of our sounds, quiet backwaters of rivers and lakes, sequestered forest ponds, some farm ponds where suitable shrubs, trees, and vegetation are found, some open places in swamps are its haunts. They like thick underbrush around ponds, lakes and bays for roosting. At times they resort to woodlands to feed on acorns, one of their chief foods. They rarely visit the coast; they have nothing in common with salt water.

The wood duck thrives largely on plant materials. During winter and fall, approximately 95 percent of its food is vegetation. In spring and summer, when egg-laying takes place, insects make up 20 percent of the diet, but plants still supply the majority of food. The diet includes acorns, hickory nuts, water lilies, duck weeds, spiders, grasshoppers and beetles. They are especially fond of spiders.

Mating takes place in spring after much courting. The nests are in tree cavities or hollows over the water most of the time. Occasionally they will build in cavities over land but prefer the water. The nests are never built on the ground. In recent years it has been learned that they will nest in boxes especially built for them and mounted above water.

The nesting site is inspected and selected by the female. She uses no material for the nest except down plucked from her body to line the nest. An egg is laid each day until the clutch is large —10 or 12. When the young are hatched after 28 to 31 days of incubation, they leave the nest usually within 36 hours. Though the nest may be from 10 to 60 feet above the water or ground, they climb, with the aid of special toenails or claws, to the opening of the box, pause a moment, then plummet safely to the water or ground. When they are all out of the nest, the female leads them away into the world to meet their friends and enemies.

Wood ducks in the open are in no more danger than other ducks. During nesting time, the eggs and ducklings are very susceptible to raccoons, squirrels, opossums, and snakes. Occasionally turtles or large fish may catch them on the water.

The wood duck is very good to eat. Their feathers may be used to tie flies for trout fishing. The sportsmen consider wood duck hunting excellent sport and recreation, plus their good eating. And since it is the most beautiful duck and purely North

• **continued on page 30**

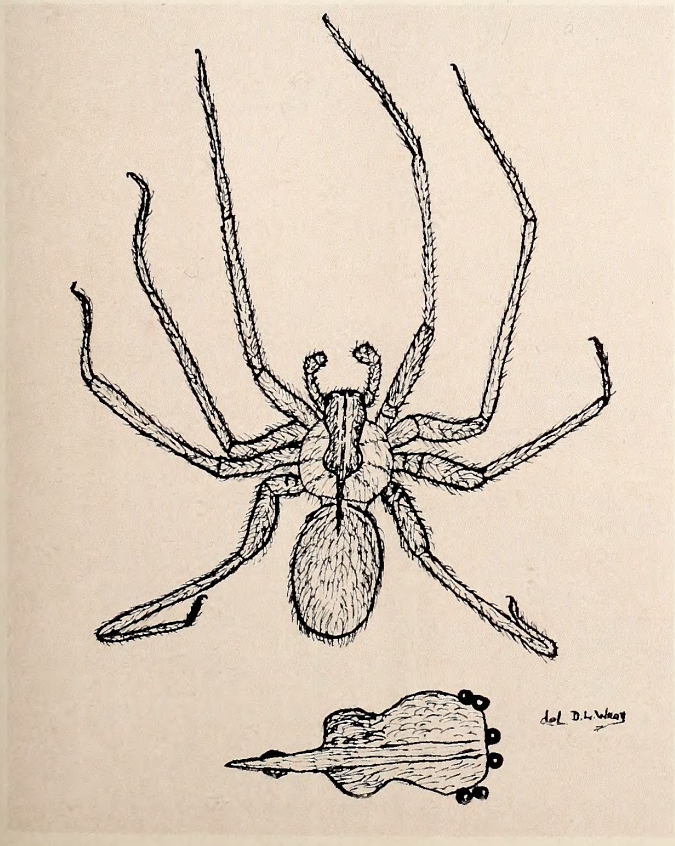
# The Brown Recluse Spider

**by David L. Wray**

Systematic Entomologist Insect Survey,
N. C. Dept. of Agriculture, Raleigh, N. C.

REPORTS and news articles appearing in newspapers, magazines, and other news media in recent months have caused considerable interest and concern to many people about the Brown Recluse Spider in North Carolina. Many requests for information concerning a description of this spider, where it occurs, and what can one do to avoid it, have come to the Insect Survey Laboratory. The following will help answer some of these questions.

The Brown Recluse Spider is a medium-sized spider, having a body about one-fourth to three-eights inch in length, with rather long legs in comparison to body size, about 1 inch in length. Its body color ranges from light tan or yellowish to dark brown. The head and front half of its body is merged into what is called a cephalothorax. The cephalothorax is somewhat depressed, and on top is situated a dark brown "violin-shaped" spot which extends from its eyes backward to the posterior edge of the thorax. This spot appears on both male and female spiders. There are six white eyes (instead of eight) situated in a semicircle just anterior to the fiddle-shaped area, as shown in sketch. Most of our other common native spiders have eight eyes on the front of the head.



The Brown Recluse Spider spins a coarse, scanty, irregular web in dark places, such as closets, garages, in large boxes, cellars, attics, sheds, and similar sheltered places. They will hide in bedding, clothes, and other wearing apparel, and in household things.

They feed upon roaches, flies, and many other household insects, and hence the necessity of keeping such pests under control in order to eliminate their infestation and serve as food for spiders.

Many household insecticide mixtures have given control when applied in areas where spiders are found. Lindane has given excellent results.

The range of the Brown Recluse Spider in the United States at present is chiefly in the following mid-western states where it is quite common: Texas, Louisiana, Oklahoma, Arkansas, Missouri, Kansas. Scattered records have recently been found in southern Illinois, western Tennessee, northern Alabama, Mississippi, and northern Georgia. In the extreme southern states as Texas, Louisiana, Arkansas, this spider can live out of doors under rocks, boards, and other debris because of the milder climate. In more severe climates it is found chiefly inside buildings in protected places.

The several places east of the Mississippi River where it has been found have resulted from persons moving from the more heavily infested mid-western states, and spiders have been brought in on household articles, such as clothing, bedding, and furniture.

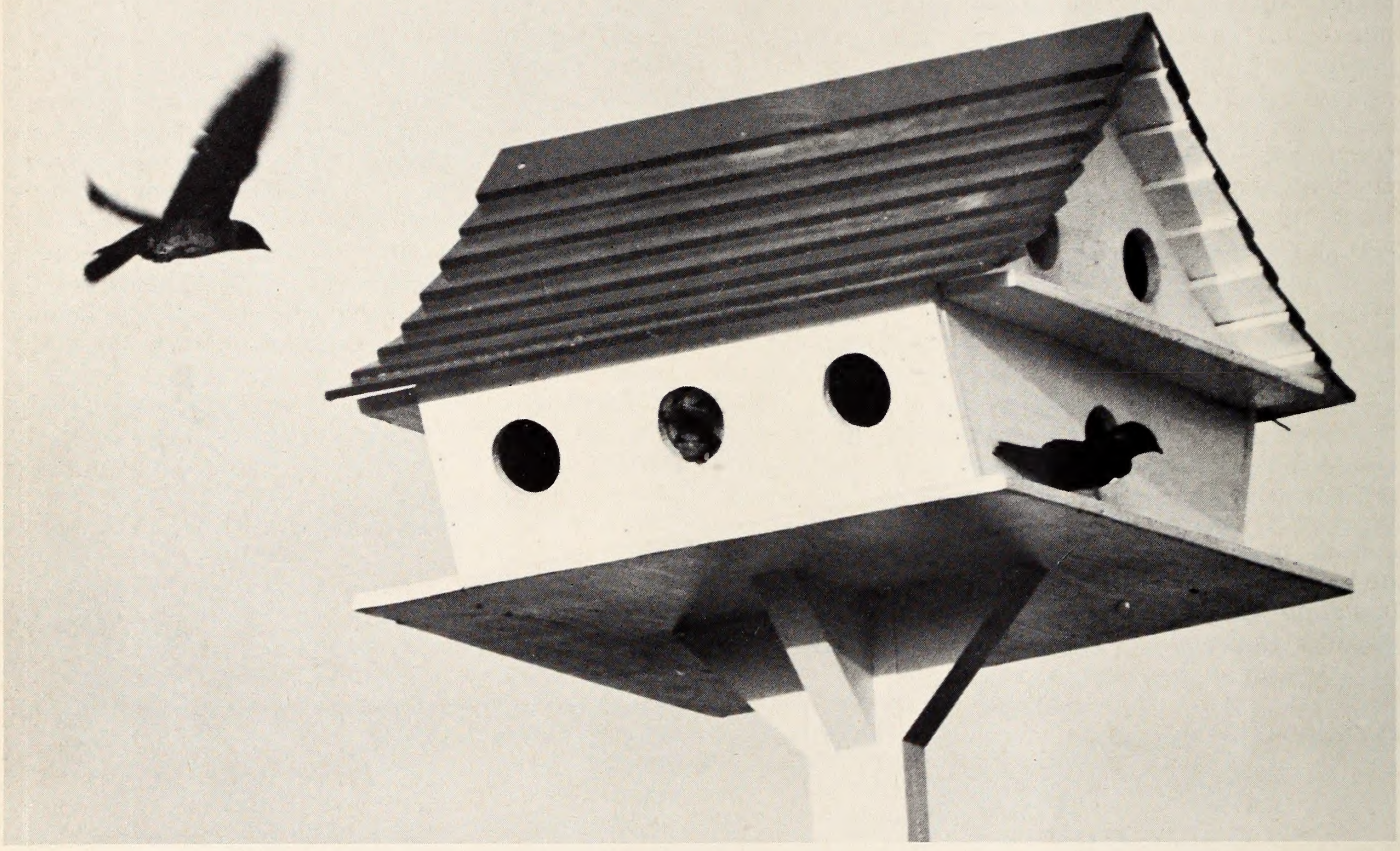
To date we have had no authenticated records or specimens found in North Carolina. However, there is always a probability of the Brown Recluse being brought in by people moving into the State as mentioned above. Hence, anyone moving from the mid-west should use great care in packing household articles and clothing to avoid bringing these spiders here.

The Brown Recluse Spider is highly venomous, just as much so as our native Black Widow Spider. However, the Brown Recluse causes a necrotizing envenomation somewhat similar to that of rattlesnake venom. The bite of the Brown Recluse causes an initial pain somewhat less intense at first than that of a bee or wasp, but it gradually becomes more severe and may be agonizing by 8 hours. After about 8 to 10 hours a bleb is formed surrounded by an erythematous area as large as a silver dollar or larger. In a day or two the erythematous area becomes violet colored with a dark central area which forms an eschar which lasts from 2 to 5 weeks. About this time the eschar separates and leaves a deep ulcer with a necrotic base which is hard and slow to heal. A pronounced scar remains which may require plastic surgery.

Within 36 hours after the bite, vomiting and a fever of 103° to 104° may result, which may last as long as one week. In more serious cases the patient may have fainting spells, and hemoglobinuria may result accompanied by some organic damage. Hemolysis can be detected to some degree by examining the serum.

# Homes For Skeeter Eaters

by Joan Pearsall



THERE are times when a cure turns out in the long run to be worse than the original ailment. When this happens, it would seem the wise thing to do is to reevaluate, profit from mistakes, and come up with something better. In some instances, the something better may even be simple, pleasant, and quite close at hand.

**This article is reprinted from "Texas Parks & Wildlife" magazine the January ,1966, issue. The author is on the magazine's staff and is a frequent contributor.**

Uncontrolled, excessive use of pesticides is easily recognized as one of those remedies with a backlash. The price of a temporary reprieve from annoying insects comes high when, along with the culprits, it takes the life of beneficial insects, fish, birds, animals and plants. To say nothing of possibly poisoning the air, streams and people, excessive use of control chemicals often compounds the original problem by killing the natural predators of the pest species.

Judicious use of a very carefully selected chemical is sometimes indicated and successful. Few will contest statements that insecticides and other pesticide chemicals have greatly increased agricultural production of the state and nation, and generally have made modern life pest-free. But far more preferable as an ally is Nature herself.

One such natural biological control is attracting increasing interest. This is the recruiting of purple martins in the battle against mosquitos. These lovely, sociable birds have long been

recognized as natural enemies of many insect pests. Just one martin requires 2,000 mosquitos a day as a normal diet. Not much aptitude for arithmetic is needed to estimate what a colony of martins could do around a neighborhood infested with these blood-sucking pests.

Realizing this, many smart homeowners are beginning to go into the bird estate business, building houses to attract martin tenants to their backyards. One proponent of this movement is Mrs. E. C. Shaver of Houston, Texas and in a recent newspaper column she told of her overwhelming success with this project. Before martin houses were put up, the mosquitos were so bad at the Shaver home that the family could not stay outside very much, and could only work in the garden a few minutes at a time. Now a mosquito is hardly ever seen.

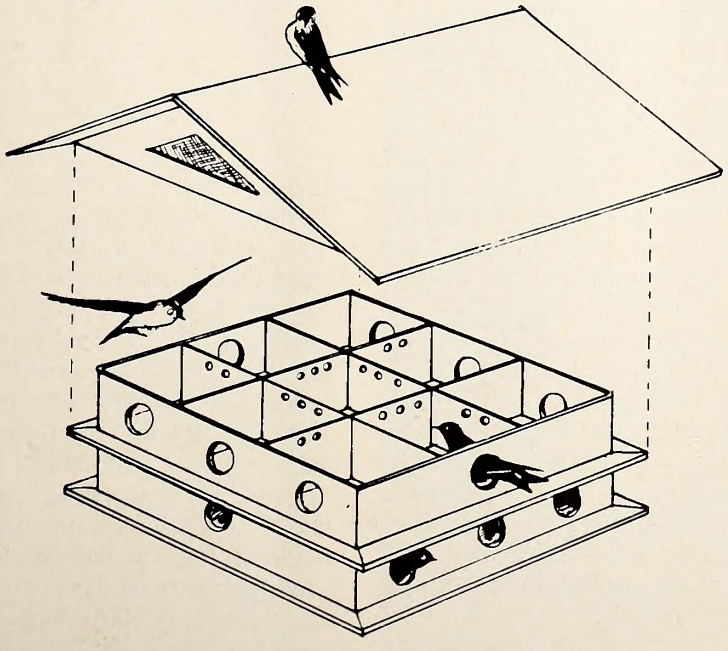
As Mrs. Shaver points out, the only cost for obtaining such freedom is the price of a small amount of scrap lumber. Since the birds never eat seed the only food supply required is that good crop of insects you are so anxious to exterminate. Not even water has to be put out for them, for they fly too fast to alight on a bird bath to drink. They drink only from ponds, rivers, and bayous, by skimming over the water without stopping, scooping up a mouthful as they go.

Since they are very neighborly, martins prefer apartment living. They will return each year to the same house, their young taking up residence in adjoining apartments. The more houses provided for them, the more martins will come down to stay. Few properly placed houses go vacant since the birds only go north far enough to find housing. If there is adequate lodging offered, few will continue farther north.

Martin houses should be placed in the open, away from trees, because it is hard for the birds to slow down enough to dodge tree limbs. The right height, says Mrs. Shaver, is from 12 to 14 feet from the ground. She recommends that each apartment should be six inches square and six inches from floor to ceiling. The building should have a three-inch porch going all the way around the house. An optional feature would be a guard rail about one inch high, to keep the babies from falling off, and also for use by the parents as a perch, when they come in for a landing.

The houses should be painted white, with a green or blue roof. Although martins immigrate into the state around the first of March, it is probably best if homes are built and painted in the fall to allow the newness to wear off before the tenants arrive. To keep other birds from jumping the martin claim the holes can be taped or plugged until the migrants arrive. There are also some houses on the market, which may be bought ready to assemble.

**This sketch shows one plan for the martin apartment which has proven effective. Construction suggestions are outlined in the article.**

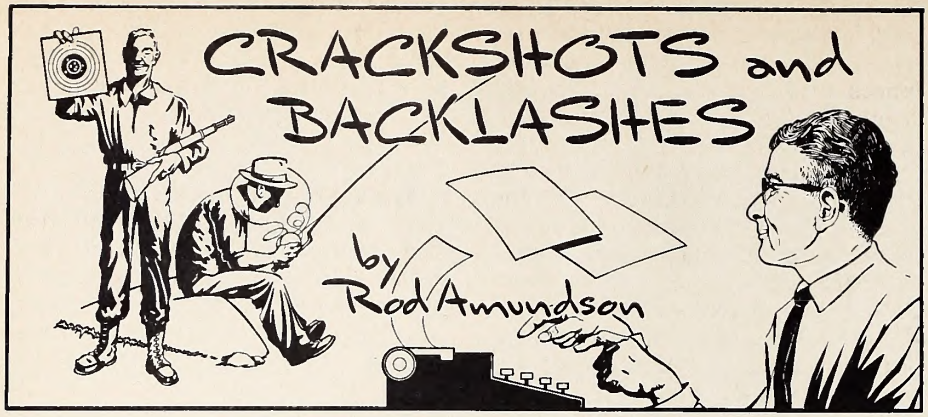


These guests, as well as paying their rent so generously by their first-class eradication service, are a cheerful addition to any backyard. They are a delight to watch and hear, with their rapid, circling glides, and their gurgling chatter. When the time comes for their fall migration, their departure is watched with regretful human eyes, and their return is eagerly awaited in the spring.

No one will dispute that mosquitos are, at the very least, a nuisance. Often they are a decided hazard, and the cause of serious diseases, such as sleeping sickness. Some kind of control is wise and necessary. Window fans should be screened, and any standing water on the premises emptied. Bug lamps also may be found helpful. There are commercial ones available, or you can simply set an electric light over a pan of water containing a little salad oil. An effective mosquito trap is made by filling a gallon jar half full of water and adding one tablespoon of borax. Mosquitos will drink and lay eggs in this water, when placed in shrubbery, garage, or under the house. Borax, however, should not be used outdoors except in well-protected traps.

Indiscriminate and excessive fogging and poisoning is expensive, as well as dangerous. It makes good sense to use simple and natural means, wherever possible.

The case for inviting martins as reinforcements is full of points in their favor. Just put out the welcome mat for them, and trade stinging pets for some valuable and entertaining visitors.




When you hand a sixteen-year-old the keys to a car, you do this with the knowledge that there has been a period of extensive training in the operation of a motor vehicle. If you are a parent and have handed your youngster the keys to the family vehicle, you wait with no small amount of apprehension, if not downright anxiety, until both come home unharmed.

When your youngster reaches the age of sixteen, he or she is required to have a valid hunting license when setting forth to the fields or woods to hunt. Do you simply hand such youngster a gun and say, "You are sixteen years old now. Therefore you are a hunter!"?

No previous training is required prior to purchasing a hunting license, but many juveniles under sixteen years of age have borne firearms afield for several years. Any training they may have came from experience, from you, or from their older friends.

Should North Carolina have a system whereby hunter safety training courses would be required just as driver safety training is required? The answer, obviously, is "yes." But who is going to do the training? Who is going to foot the bill?

Part of the gasoline tax you pay, the extra dollar on your license plate fee, and some of your school tax money, go to pay for really excellent driver safety training courses.

**Boys and guns seem to go together and have since the founding of our country. But the safe use of these firearms is essential. It presents a knotty problem.**

PHOTO BY LUTHER PARTIN

Should part of your hunting license money go toward paying for a hunter safety training program in our schools or elsewhere? At present the Wildlife Resources Commission is engaged in a study to find out how many people become sixteen-year olds each year, and, hopefully, how many of these will be required to purchase hunting licenses. With this information in hand, we can begin to make plans for a comprehensive hunter safety training program.

Is all this really necessary? Records show that teenagers are involved in about the same number of hunting accidents as their elders, while a preponderant majority of hunters are more than 21 years old.

The need is obvious. You don't hand the car keys to a sixteen-year old who has had no training and say, "Now you are sixteen; therefore, you are a driver." Does the same principle apply to shotguns and rifles? Your comments on this would be appreciated.

### Deadly

DEAR SIR:

Your picture of a coral snake in the August issue of WILDLIFE brought to mind an old argument. Is it true that a bite from the coral snake will kill you in 10 seconds, or could a healthy person possibly survive a bite?

I would appreciate some solid facts on the fatality of a coral snake.

Thank you.

Sincerely,
Peter Scott,
Durham

Dear Mr. Scott:

Mr. Rod Amundson, of the Wildlife Resources Commission, has referred to us for reply your letter of August 15, 1967, relative to bites of the coral snake.

The coral snake is dangerously poisonous. Although the small mouth and short fangs make it difficult to bite most parts of the human anatomy (fingers or toes, of course, are quite vulnerable), the venom is potent.

Even though there are a few records of coral snake bites, they are sinister and about 50 percent of the bites are fatal. In two

cases—one a man of normal health and vigor and the other a healthy boy—the victims were bitten while the snake was being handled, and in both cases death resulted within 24 hours. The bite of a coral snake, without neutralizing serum, is a very serious matter.

Sincerely yours,
William L. Hamnett,
Director,
N. C. State Museum

### Salesman

"Wildlife in North Carolina" very likely has many salesmen scattered about the country, but one in particular deserves a word of thanks and encouragement. He is Carl Reese who, over radio station WJW in Cleveland Ohio, has sold untold numbers of our magazine. We say "thanks, Carl, and keep it up."

### Needs Help!

DEAR SIRS:

I have been living here on the shore of the Pamlico River for 23 years. All of these years I have made our place a haven for the birds and have thoroughly enjoyed them. I have kept four feeders full of wild bird seed, sunflower seed, and crumbled biscuits, corn bread, peanut butter, etc., and the trees full of hanging bags of suet. I have been rewarded by visits from a great variety of birds: towhees, wrens, chickadees, cardinals, kinglets, purple finches, juncos, mockingbirds, abundant grosbeaks, 50 or more Baltimore orioles, to mention a few.

All of these years I have bought the food with the exception of the bread, which I have collected at school from the elementary school children's plates. But now I have retired and do not have access to the uneaten bread and can't afford to buy the seed, etc., that my birds eat. In addition to adjusting to a low income, my husband has been unable to work for almost all of those years and has been in the hospital four times within a year's time.

I am writing you hoping that you can help me solve my problem; hoping that some source is available to help feed my birds; so when the winter grosbeaks and orioles especially come back to my feeders they will stay until they are ready to migrate. I keep a record of their visits so I'll know when to expect them.

Mrs. Jenny Frye Worrall,
Bayview, Bath

### Striped Bass In Trouble?

DEAR SIR:

In my opinion the November issue of WILDLIFE IN NORTH CAROLINA should be gold-plated!

Your article on bay stripers is one which I have long looked for in your magazine. My father and I have been fishing for rock in East Lake for the past several years and have had very good luck. During a period of two days last December, three of us caught 93 rock with a total weight of 308 pounds. In my opinion East Lake is the best section for this type of striper fishing on the North Carolina coast.

Fishing the bays on our coast for rock can be very profitable all year long; but, as you said, not many fishermen are aware of this fact. I am glad to see that someone in your position has decided to inform more people of this type of fishing.

You may wonder why I have decided to write this letter. To begin with, I am very concerned with the striped bass population of our coast. I am a student at North Carolina State University where I am majoring in fishery science. In fact, Dr. Hassler is my advisor, and I also like to consider him a good friend. But, I have not yet discussed with him the effect commercial fishing has on the rock population in Albemarle Sound. This is what I would like for you to advise me on.

The last time I visited this East Lake area was at the first of October. At this time, the Sound was full of small rock and pound nets. Two of these nets were set on each side of the Haulover and extended over one-half mile in to the Sound. Last year nets almost completely closed off the opening between East Lake and Alligator River. As you can see, these nets readily prohibit the rock from moving into East Lake.

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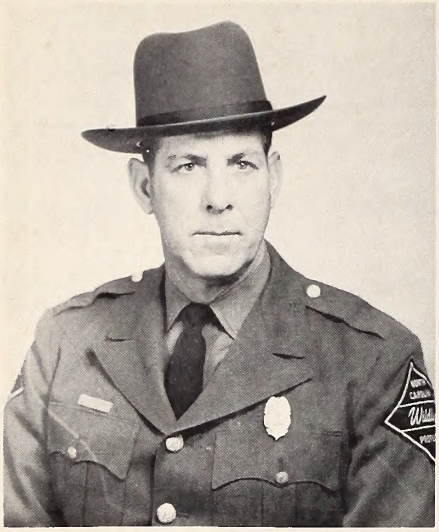
PHOTOS BY SGT. BILL HUSKINS

**Gulls and other coastal birds eat shellfish such as oysters and scallops. But first they must break the shells, and to do this they drop them from considerable heights on to highway pavement. Trooper G. D. Britton tried painting white gull outlines on the pavement to discourage the birds, but with little change in their habits. The problem of sharp shells on the coastal roads continues, and Trooper Britton shows what a fragment of shell can do to a tire.**

## KNOW YOUR PROTECTOR



**Lewis N. Barts**

Wildlife Patrolman Lewis N. Barts was born January 7, 1924, in Kannapolis, North Carolina. He is the son of Mr. and Mrs. W. G. Barts of Kannapolis. He spent twelve years as a barber in Kannapolis prior to being employed with the Wildlife Commission.

Barts completed the Pre-Service Training School for Wildlife Protectors in 1957, and was employed in October of that year as a trainee in Alexander County. He has completed six In-Service Training Schools at Chapel Hill since then. In May of 1959, he was appointed Wildlife Protector, stationed at Spruce Pine, where he served until May of 1960 and was then transferred to Morganton. In April of 1962, he was promoted to Wildlife Patrolman and moved to Shelby where he now resides. He is married to the former Maryland Safrit of Kannapolis and has two sons, Lewis, Jr., age fifteen and Tony Britt, age thirteen.

Barts served with the First Marine Division in World War Two as a scout and sniper, and was discharged in 1945. He is a Mason and a member of Allen Graham Masonic Blue Lodge #695. in Kannapolis. Mr. Barts is an N. R. A. Hunter Safety Instructor, member of the Southeastern Association of Game and Fish Commissioners, Law Enforcement Section, North Carolina Voluntary Police Benefit Association, and completed the official Skin Divers Course.

## DIVISION ENFORCEMENT RECORD FOR OCTOBER, 1967

| | |
|---|---|
| **HUNTING & FISHING** | |
| Persons checked | 28,787 |
| Total prosecutions | 533 |
| Total convictions | 502 |
| Total cases not guilty | 9 |
| Total cases nol prossed | 20 |
| Total cases dismissed | 2 |
| Total fines collected | $2,807.15 |
| Total costs collected | $5,179.10 |
| **BOATING** | |
| Persons checked | 670 |
| Total prosecutions | 67 |
| Total convictions | 61 |
| Total cases not guilty | 3 |
| Total cases nol prossed | 2 |
| Total cases dismissed | 1 |
| Total fines collected | $105.40 |
| Total costs collected | $627.55 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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On our last trip to Albemarle Sound we caught several rock out from the Haulover. These fish were too small to keep and had to be thrown back. But, we watched one commercial fisherman empty one of his nets at the Haulover without checking the first fish to see if it met the size requirements. I have also noticed numbers of illegal-sized rock in fish markets. Evidently, something is wrong somewhere. I am wondering if the Wildlife Commission is aware of these practices.

If something is not done about this problem at East Lake, the fishing you so eloquently built up in your article will surely start to decline—much to my sorrow. I will appreciate any advice you can give me concerning my views on this problem of commercial fishing.

Preston P. Pate, Jr.,
Raleigh

Dear Mr. Pate:

There are many misunderstandings concerning controlling the harvest of these fine game fish, largely because they are anadromous. When they are in inland waters they are under the jurisdiction of the Wildlife Resources Commission, but in commercial waters they are under the jurisdiction of the Division of Commercial and Sports Fisheries, Department of Conservation and Development.

Almost everyone agrees that these fish are a valuable resource and should be protected. Your letter, reprinted, may help along this line.

Rod Amundson, Chief
Division of Education

### Only One?

DEAR SIR:

I have been hunting with bow and arrow in the Uwharrie refuge for eight years.

On November 2, I was lucky enough to bag a bobcat. I know there have been bobcats taken with the gun in this area and all over the State. What about the bow? Do you know or have any record of anyone else in the State doing this? I did not use a predator call or any other means to get close. I was hunting deer on the bow and arrow hunt and the cat was on a hunting trip of his own. I know the shot was just pure luck and can only happen once in a lifetime. The taxidermist will soon have it ready for my den.

Leon Owen,
Greensboro

Mr. Owen operates Owen Archery Supplies in Greensboro and obviously knows what to do with his own product. Any one top this? Ed.

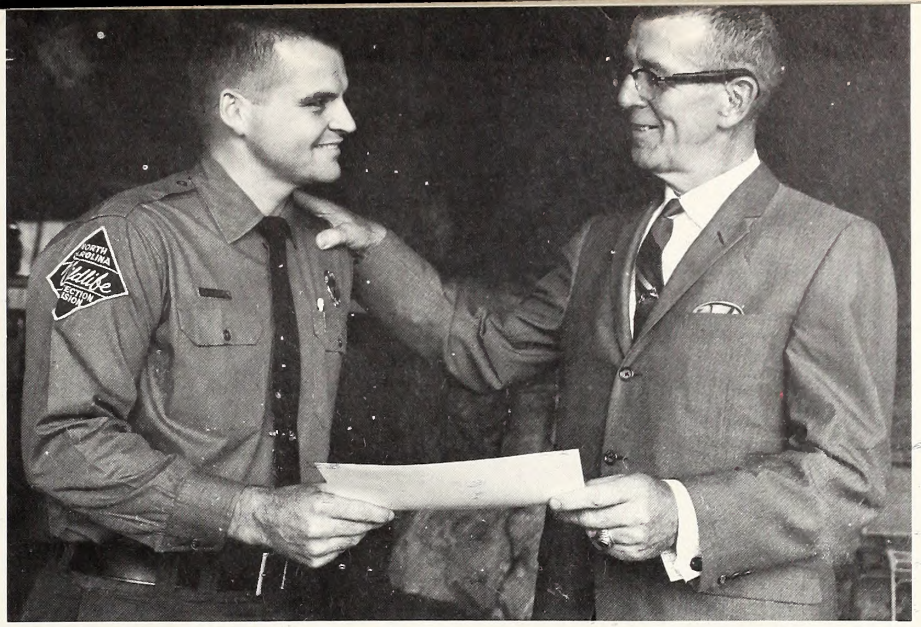
## Wood Duck

• **continued from page 24**

American, it has a high esthetic value.

Greater areas of desirable habitat are needed, plus less draining and clearing of wetlands desired by the wood duck. More nesting boxes* should be erected to encourage and increase the population, and protection from illegal hunting is always important. By 1918 the population had declined until hunting was prohibited until 1941. Much conservation work has been done to increase the numbers and they are once again on the hunting list.

*Wood duck nesting box plans may be secured free on request from the Wildlife Resources Commission, Box 2919, Raleigh, N. C. 27602.



Steve Morrison receives the N. C. Protector of the Year Award from Wildlife Commission Director Clyde Patton. This citation for outstanding service was awarded by the Law Enforcement Section of the Southeastern Association of Game and Fish Commissioners at its annual meeting in New Orleans last fall.

# Hint of Spring

**by Nell Lewis**

WIND, fresh from the far frozen north, whips down our mountains, rustles among the foothills, and speeds on its way over the flat lands to join the restless sea. Low ceilings of gray clouds bank in, threatening snow. Winter's grip seems yet tight on North Carolina.

But even now there is a faint whisper of life; out across the firm, cold hills the Hepaticas are blooming! If these charming little beauties were to bloom amid summer's abundance their presence might be lost forever. But coming as they do, they proclaim that it is a mistake to assume that the earth ever sleeps; it only dozes.

Flowers of softest blue, lavender, pink or white rise on willowy, hairy stems above three-lobed, mottled evergreen leaves. The petals of this member of the buttercup family are actually few to obsolete. It is the sepals, bright and petal-like, that create the show. These may number from five to nine but observation proves that most of them are six "petaled".

Growing directly from the fibrous roots, the flowers have a long period of bloom, often from December through early spring. If the seed heads, like tiny stiff brushes topping the stems, are left undisturbed, this plant will slowly carpet small areas in suitable soil.

People of the Middle Ages believed the hepatica to be beneficial to liver ailments and the plant takes its name from a Greek word meaning liver. The leaves somewhat resemble the shape of a liver.

After the flowering period, the old leaves wither and die. The fuzzy, silvery leaves of early spring are as delightful as a kitten's ear. As they mature they are green with darker splotches. In autumn they turn reddish brown and so blend with their surroundings that they are often overlooked. This harbinger of spring is well worth the effort of a search and is more easily spotted during it's season of bloom.

Found on slopes under deciduous trees where the ground is rocky and well-drained, yet rich with humus, this perennial adapts well to transplanting. It is an asset to any woodland garden. Both *Hepatica, americana,* the round lobe form, and *Hepatica acutiloba,* the sharp lobed one, are on the conservation list and *should not be lifted* unless they are in the path of progress. (Photo on back cover)

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HEPATICA Photo by Nell Lewis

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# Wildlife IN NORTH CAROLINA

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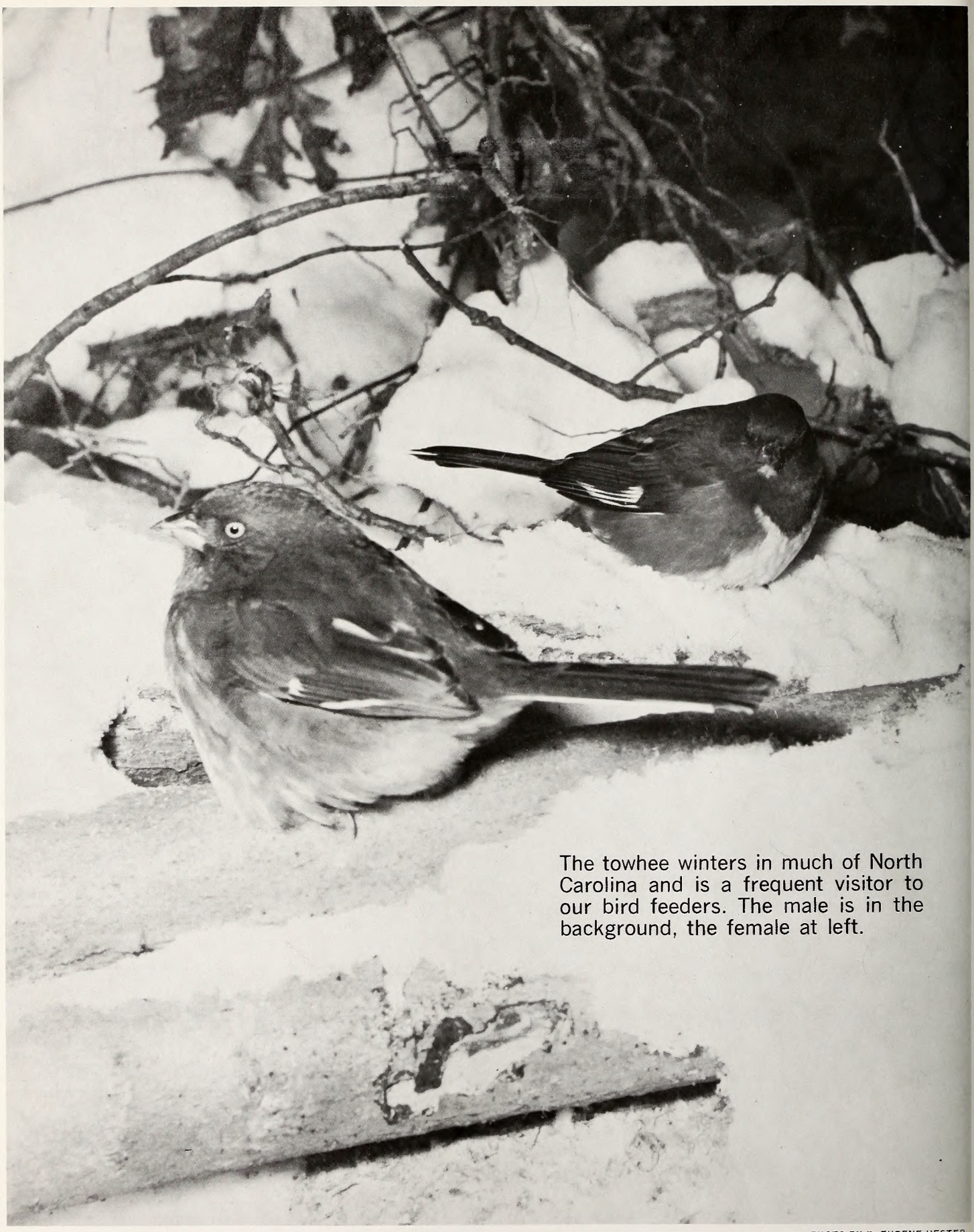

The towhee winters in much of North Carolina and is a frequent visitor to our bird feeders. The male is in the background, the female at left.

PHOTO BY F. EUGENE HESTER

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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LUTHER PARTIN _ _ WRITER-PHOTOGRAPHER
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Regardless of your feelings about the deportment of the red fox, you must admit he is a handsome critter. This portrait by Clark Bronson, one of America's foremost wildlife illustrators, shows the heavy winter coat of an adult. The actual body size is often difficult to determine because of the long hair. More on the red fox is featured in an article on page 10.

# In The Bag!

by Clifford L. Bampton
Supv., Western Wildlife Management Areas

PHOTO BY JOEL ARRINGTON

THE white-tailed deer, a shy, retiring, curious, alert animal, is North Carolina's most famous and familiar big game animal.

Only yesterday the whitetail was a wilderness symbol that had faded forever with the virgin forests and fast-and-loose hunting. Granddad's big buck stories seemed as remote and unreal as wild Indians or nickel beer.

Then almost overnight the deer were back for us to enjoy and argue over. Where had they gone, and how did they return?

They went with the pioneers; they returned with the dawn of modern conservation.

America grew up eating venison and wearing buckskin; as a Nation we were weaned on deer meat and took our first toddling steps in deerhide moccasins.

And we're still People of the Deer. A mountain farmer in western North Carolina, waking to find frost in the laurel thickets, oils the lock of his ten pound "hawg rifle" and winks at his son. An old mountaineer from eastern Tennessee was asked why he'd bothered to buy a new .30-30 carbine. The old-timer snorted with a cold stare: "Why? For to shoot bucks with!"

Why, indeed!!

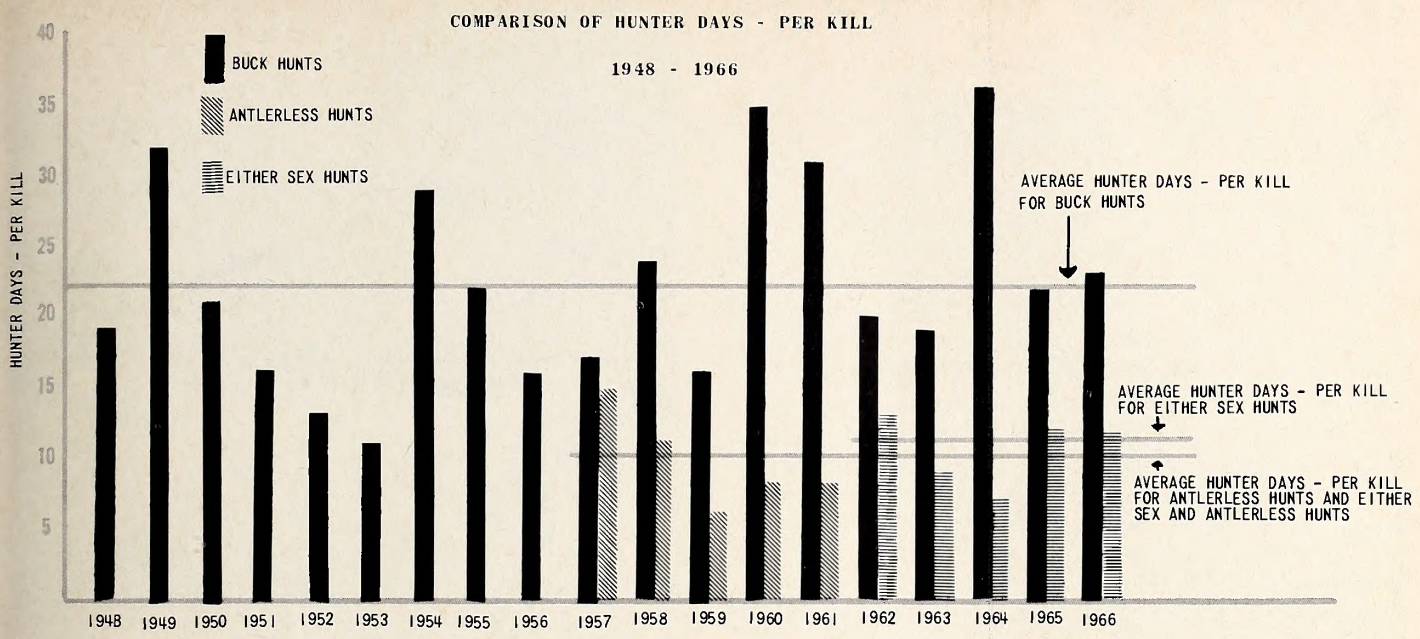
Anyone from the outcountry knows that a proper man looks first to his Bible, then to his buck rifle, and then to the business of deer. These things done, he has put himself in proper order to look after his Nation.

Each year more of us journey to the big woods and a contest that is ancient beyond our dimmest reckoning. That contest—and that yearning for vivid, genuine experience—is centered on that stately critter, the white-tailed deer.

Deer hunting is not truly a contest between man and deer; it's competition between man and Nature. You aren't really competing with the deer, but with the snowy forest, cold feet, a growling belly, and your own discouragement and willingness to quit. Overcome these, and you've won an important contest with yourself. You may also be awarded the first prize—one of the most splendid big game animals in the world.

The whitetail is an established resident of North Carolina and is likely to remain so—just as long as hunters prize deer, and invigorating fall weather and subscribe to the knowledge of their trained game biologists and foresters.

AS a trained game biologist, I would like to pass along something I've worked up on the number of days it takes to make a deer kill on wildlife man-




agement areas, and to demonstrate that our herds have been sustained in good shape since antlerless and either sex deer hunts have been initiated.

Four of the most popular Western Wildlife Management Areas were studied—Fires Creek, Standing Indian, Sherwood, and Pisgah.

Fires Creek and Standing Indian have each sustained 18 years of hunting while Sherwood and Pisgah each record 19 years.

During these years, hunting pressure and deer kill have fluctuated up and down but the long-term trend has been upward for both pressure and kill. In spite of these changes in hunting pressure and kill, the number of days required for a hunter to make a kill has changed very little over the years.

The records sustained on the areas mentioned are remarkably similar. The average number of man-days per kill on buck hunts for Fires Creek was 17, and 22 for Standing Indian, Sherwood, and Pisgah respectively. Antlerless deer hunts averaged 13 man-days per kill for Fires Creek, and 10 days each for Standing Indian and Pisgah (antlerless deer hunts were never scheduled on Sherwood). While the average for either sex deer hunts was eight man-days per kill for Fires Creek, nine days on Standing Indian, ten days on Sherwood, and eleven days on Pisgah. It is interesting to note actually how little variation there is between the average number of days required to make a kill for each type of hunt on each area over the 18-19 year span.

LET'S take a closer look at Pisgah. In 1948, it took an average of 19 days to make a kill on the buck hunts (three less days than the 19 year average), while in 1949 it took 32 days (10 more days than the 19 year average), in 1953, 11 days (11 days less than the 19 year average), in 1954, 29 days (seven more days than the 19 years average) and so on. You will note that these ups and downs in kill success rate on buck hunts occurred *before* antlerless and either sex deer hunts were started and continued after they were initiated.

Despite the increase in hunting pressure and deer kill, the average number of days to make a kill today is about the same as it was in 1948. Yet, there are some who argue that we had more deer and better hunting, 10, 15, or 20 years ago. If we did have more deer per hunter 20 years ago, then the lower hunter success also would mean that we had poorer hunters at that time. Surely, that could not be true. Undoubtedly, some sections of the State *did* have more deer and better hunting success in the past. But from the statewide viewpoint, present hunting success is as good as it was ten years ago, and better now than it was 20 years ago.

However, we do have more unhappy deer hunters now than 20 years ago. Since the unsuccessful hunter is more likely to express his opinion of the deer season, the present volume of complaints could be expected to be almost double that of 20 years ago. Furthermore, even though a 25 percent success figure is maintained in the future, with an increase in number of hunters there will be three unsuccessful hunters added to the total for every successful one.

Deer have come back, are still increasing, and will surely continue to increase in North Carolina. And even when a combination of peak hunting and lack of additional range on a particular area call a halt to the increase, the herd will probably stabilize at a high population level.

We urge you to have faith in the trained technicians who have been employed to serve you—their sole objective is to improve and sustain good hunting. Next season grab your ole faithful and try your skill at outwitting our favorite big game trophy that flashes it's famous trademark—the big white tail.

# How Much is a Boy Worth?

WHEN they report in, these boys are at a major crossroads in their lives. Many of them are uneasy. A few are relieved of switchblades and other "equalizers." While the forest rangers seem friendly, and the forest inviting, a few speculate on whether this isn't just another kind of cop in another kind of jungle. Soon they are issued new outfits including fatigues of forest green. The rooms in the barracks to which they are assigned are not unlike school dormitories. Many are labeled with such signs as "The All Stars," "The Leaders" and "The Challengers." One labeled "The Playboys" boasts a second sign designating it as the "Dorm of the Week." A quick inspection inside reveals that it is neat and well-scrubbed with everything tucked out of sight, just like the Army. The pinups are first rate too.

This is a Job Corps Camp as run by the Office of Economic Opportunity and the U. S. Forest Service at the Arrowood Job Corps Conservation Camp at Franklin, North Carolina, hard by the Nantahala National Forest. It presently houses 112 boys. Another a few miles away in the Pisgah National Forest is the Schenck Job Corps Conservation Center with a complement of 204 boys. Both camps are in one of the most picturesque regions in the nation. All told, 8,000 Corpsmen are now being trained at 47 Forest Service centers in the United States. The Interior Department runs 39 more with an enrollment of 6,000. Purpose of the camps is to teach boys to function as useful citizens. Maximum training period is two years. While in the Corps they go to school a week and then work a week. They are paid $30 a month and on separation receive $50 for each month of service as a readjustment allowance.

When they arrive, these boys are unemployable and many are Army rejects. Others arrive underweight.Dental work costing as much as $500 per boy is not uncommon for many of these boys have never been to a dentist in their lives. Other medical repairs are often required and former Marine and Army medicos in camp sick bays, and contract physicians and dentists in nearby towns, are kept busy. When necessary physical corrections are made, underweight boys start to muscle up. Both their physical and mental tone improves. But that is only part of the rehabilitation story. These boys are behind in their school work too. Twenty-one year olds tell you they went through the 11th or 12th grades but one finds them enrolled in the equivalent of third-grade classes reading books with pictures of Peter Rabbit on the cover. One third of the boys can neither read nor write when they arrive. That's not all, either. Many of these boys lack moral discipline and home training. Some have been in

PHOTO BY JACK DERMID

**To neglect the training of our youth, no matter what age, in the fields of natural resource use would result in a materially poorer Nation.**

scrapes before they arrive and a few get into scrapes after they arrive. Mostly, these are boys that never had much of a chance and some never had any chance at all.

I welcomed a recent invitation to visit the North Carolina camps. One of my hosts was Vern Hamre, Director, Division of Job Corps Administration, U. S. Forest Service. A career professional, he doesn't preach or theorize about his current assignment. "These kids need help," he told me. "We intend to help them as well as we know how." He and some of the other rangers and instructors helped me to obtain at least some of the answers readers of *American Forests* have been asking. These include "How can rangers be expected to do what the home has failed to do in the first place?," "Will society be the gainer or the loser in this program?," "How many of the boys actually find jobs or go on to school?," and "I'm told it costs in excess of $5,000 a year to send one of these boys to camp; is it worth it?"

"At the Center, it cost a total of $6,576 per boy per year in 1966," Hamre said, "but we expect to reduce that to $5,700 this year." Subsistence and medical-dental expenses are the biggest single items with the exception of staff salaries which average out to $2,170 per boy. School materials is a hefty item too.

At the end of April, 1967, there were 75,410 young men and women who had left all Job Corps Centers. The Job Corps' best estimate, based on both verified reports and sample surveys, is that 40,269 found jobs, 7,418 returned to school, 5,298 entered the military and 22,415 were either unemployed or not in the labor force through marriage or other causes. The arrest rate in 1966 was 3.18 per 100 youths whereas the FBI Uniform Crime Report for 1967 shows the national average

for the same age youth to be 6.5.

I welcomed the complete freedom to talk to camp personnel including the boys. I sought out Joe Medford, an instructor at Schenck Center, from Haywood County, and who has taught in both elementary and high schools. At Schenck he is teaching a course on "Life and Work." The day I was there the boys were talking about the responsibilities of marriage. What qualities should the right Wife and Mother have, was the question. Some of the answers as recorded on the blackboard included, "She should be clean," "a good sport," "respectable" and "have a nice personality." One boy had noted that she should be "religious."

"Don't think these boys are stupid," Medford told me. "For the most part they have intelligence ratings that are average and even above in a few cases. Sure, there have been some discipline problems but the older boys often settle them for you. Somtimes new boys think they have to sound off and disrupt the class and the older boys shut them up in a hurry. Most of them want to learn."

Almost too good to be true, one thinks to himself. And yet, these boys ring true when you talk to them individually. "Sure, I've been in scrapes" a boy from Alabama told me. "Then I got this girl in trouble. It caused a lot of discussion, you know what I mean. But if I can keep my mind on this (with a motion toward the lathe he was working) I'll be all right." He said he planned to be a long-distance trucker.

One quickly senses that the backgrounds of these boys are different from the youngsters one sees across his own dinner table every night. But if their background is different from your own children their response to good stimuli is not. They watch the rangers. Some ape their walks. They like to fight forest fires, I learned, in eating lunch one day with Venton Honeycup, of Washington; Fred Murphy, of Baltimore; and Clinton Wills, of Mosspoint, Mississippi. All three boys are negroes and all three are in the fire crew. In a drought year, the rangers admit they did "well." Murphy was more enthusiastic. "The last time, they *asked* for us, man" he told me. Willis was consigned to "mop-up" the last time and he didn't like it. "Important? I guess so." he said. "But a fireman wants to be where the action is."

The fact that some of the boys have stepped into permanent Forest Service jobs has not been lost on the others. The day I was at Arrowood the Franklin *Press* front-paged a story: "Nathan Dean Lands Forest Service Job" and gave Nathan a two-column picture on the front page. The story mentioned that when Nathan arrived at Arrowood from Virginia he was regarded as "flighty and unstable." But not anymore. Bob Sloan, the editor of the *Press* has taken some flak for his consistent support of the Job Corps. He is one of many unsung heroes in this regard.

I talked to Richard Kruger, white, of Garrison, North Dakota, at Standing Indian Campground where he was laying pipe. He wanted to get into the Army and was rejected. Physically he was O. K. but he couldn't read. He felt bad. "They told me to go into the back room and see a man," he told me. "And here I am." He is still aiming for an Army career and intends to get it.

Harold Hughes, white, of California, has been in North Carolina 19 months. "I intend to stay here," he told me. "I like the country and the people. I aim to be the best plumber in western North Carolina." He was working on a campground lavatory the day I talked to him.

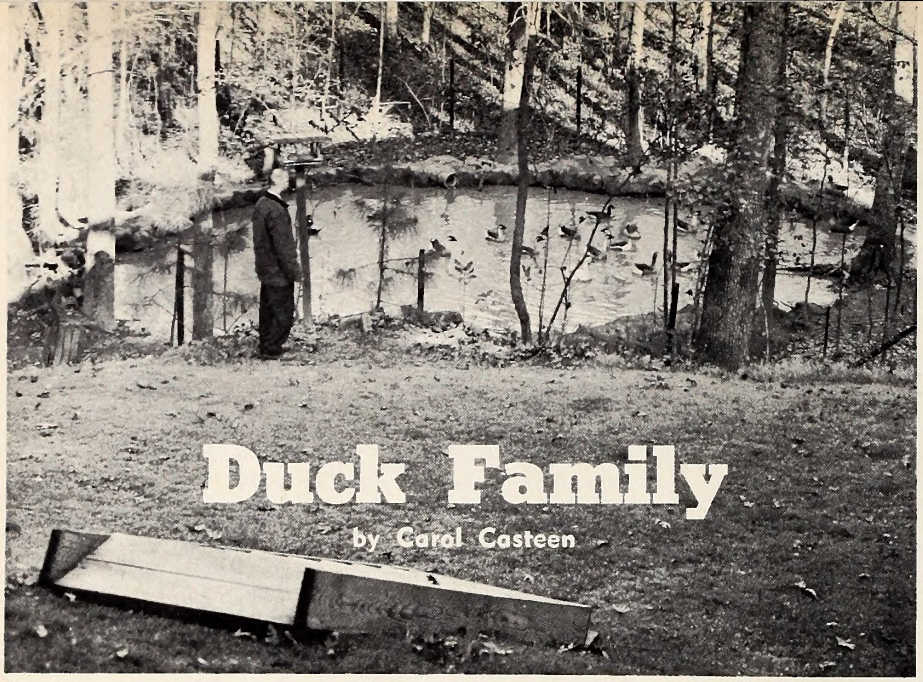
They have desire. But it has to be kindled and nourished. One boy told us he hopes to graduate to another Camp near a big city in New Jersey. Their machinist training and equipment are more sophisticated than in North Carolina, he said. Rangers admitted that specialized vocational training is better at some of the big city camps than in the forest-oriented camps. They quickly add that Conservation Centers teach better work habits and better s o c i a l adjustment. At the same time I couldn't help thinking our forests are serving one of their highest uses as their subtle influences help to remold some of these boys. And as Honeycup, Murphy and Wills told us, "You don't get to fight forest fires in no big city, man!"

Wherever possible, effort is made to have the boys' school schedules dovetail with their work schedules. National Forests are big farms in many ways and practically all kinds of work has to be done. The boys take well to their conservation assignments. All told, a total of 7,120 acres of trees have been planted. They are carrying on range improvement, fence construction, improvement of fish and game habitat, construction of fire breaks, streambank stabilization and watershed restoration. There is more than enough to be done on the National Forests for many years to come, the rangers say. When job crews encounter old C.C.C. camp construction or tree planting projects the rangers make sure the boys are told that story.

Hamre told me the Forest Service is "well pleased with the community relations climate at the majority of Job Corps Centers." A visitor comes to the conclusion that people of western North Carolina deserve a lot of credit. True, they occasionally gripe about the ratio of white and negro boys at the camps. They had been told the ratio would be the same as in their own communities, or about 70 percent white and 30 percent negro. The opposite has proven true. Negro boys seem to thrive in the camps in the main. Fewer white boys from the poverty pockets in rural areas come and those who do are often the first to leave.

At the same time, the griping impresses one as more academic than real. The truth is the North Carolina people work well with the boys and encourage them. One can't escape the conclusion they really understand negroes better than northerners. Their fairness impresses a person. "Sure, there have been some fusses" one Asheville citizen told me. "But at least one of them was started by our Ashe-

• **continued on page 26**



# Duck Family

by Carol Casteen

PHOTOS BY LUTHER PARTIN

AFTER turning off the paved road into the driveway which led me through a quarter mile of densely wooded area, I approached the modern, isolated home of the H. D. Ogburns near Apex.

Over the past seven years, the Ogburns have adopted 17 "children"—all of them from the "Duck Family." A friend, Bill Foster, started the family by giving them their first children—Chinese geese, of which only one remains. His name is Clipper. Chinese geese are large white geese with a yellow beak and yellow knob on their heads. Through the years, the toulouse, African, Canada, mallards, and East Indias were adopted. The Canadas used to stay pretty much to themselves but gradually worked themselves in with the others to form one big, happy family.

With this large family, water had to be provided. The first attempt was an old-time bathtub with a board up one side as a ramp within the fences of the duck home. The only difficulty—the ducks refused to use the bathtub!

The only other alternative was to build a pond. Since this duck home was in a marshy bottom a stone's throw from the Ogburn's backdoor and had a natural spring, Mr. Ogburn built a mud dam around the lowest part of the area. The spring thus filled his "wet weather pond", and his children took to this like, well, like ducks take to water!

Indeed they love their pond. They play in the water, dive down head first to eat off the bottom, their tails the only thing sticking out of the water. They also have eaten bugs and roots out of the side of their dam, nibbling it away almost to the point of having to be replaced.

Mr. Ogburn laughs about the fact that his ducks are better watch dogs than his dogs are. They can distinguish between a stranger approaching and masters. The dogs not only more or less disregard strangers, but also disregard the ducks. It seems that these ducks are very easily upset, however. Maybe that is why they are so excited when something or someone strange is around.

Nothing special is needed in caring for Mr. Ogburn's ducks. They seem very independent caring for themselves. Even though shelter has been provided for them in their ¼ acre home, they prefer to stay out in the weather. Oddly enough, they stay in the pond more during the winter than they do in the summer.

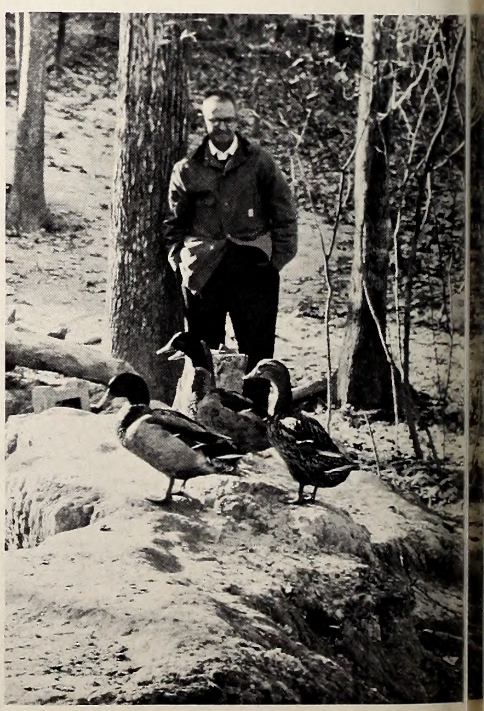
Mr. Ogburn has to keep the wings clipped on the Canadas and mallards to keep them from trying to fly over the fence. The Canadas have large, heavy bodies which prevent them from getting off the ground very well. Trying to fly over the five-foot fence would be hazardous for the Canadas because of their weight. The mallards are lighter, but still they too try for their freedom.

Although the ducks and geese are visible from the air all day long, seldom do migrating flocks dip down to join the family. Once in a while quacks are exchanged with the wild ones heading north or south, but that's about the extent of the communication.

Mallards are often considered a species of river duck. The male has a glossy green head and neck, a white ring around the base of the neck, brownish upper parts and chestnut breast and dirty white belly. The female is mainly brown, but like the male, has a purple wing patch, bordered by narrow bands of black and white. This is the way most people think of mallards. However, this description is their fall plumage when they are most colorful. The other three seasons they are not as attractive.

Clipper, the Chinese gander, will always try to protect all of

**This group of mallards enjoys the winter sunshine, scarcely mindful of Mr. Ogburn's watchful eyes.**



the others much as a mother hen would over her brood of chicks. If any stranger approaches their lot, Clipper always tries to stay between them and his family. Even if he is a gander, he still considers himself their "mother."

ONCE one of the ducks managed to escape his home only to find the outside world was not what he thought it would be. All of the other ducks gathered together in one place, squawked, squawked, and squawked what had happened. Upon noticing what had happened, Mr. Ogburn returned the wandering one to the secure haven of home. Mother Clipper had his say-so in the matter too. He gave our gypsy-soul a good scolding much as any mother would do.

Of the one Chinese gander, seven toulouse, two Canadas, three East Indians, and four mallards, the East Indians are by far the most beautiful with their shiny blue-black dress.

Are you wondering what all these children eat? They prefer lettuce leaves to anything else. But who can afford that much lettuce? So next to the best thing, Mr. Ogburn feeds them chicken feed. Is this an insult? It must not be; they eat about 25 pounds a week. They have eaten every green thing in their reach within their fenced in pen. Laughingly, Mr. Ogburn says "they even ate the honeysuckle and briars."

Watching this family eat is quite interesting also. They will peck at their feed, go to the pond, drink, come back, eat some more, return to the pond, and drink again.

As Mr. Ogburn says, "they seem to have their own ground rules. They mate only with one and there doesn't seem to be any running around on their mates. Clipper, the Chinese gander, has taken a fancy to most of them but thus far there has been no crossbreeding. But there is always this possibility.

"These ducks have even serenaded us on moonlit nights. Now if you think that's romantic, you're mistaken. It's rather disturbing, especially if one has sleep on his mind."

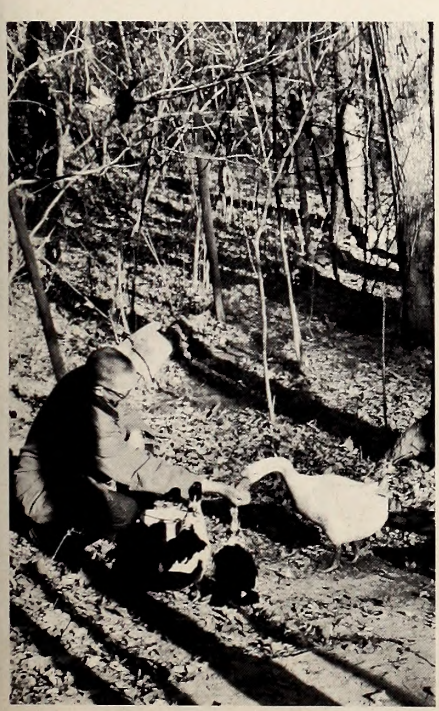
One morning as Mr. Ogburn started out, he noticed all of his children were on the pond in a tight family group and as quiet as the wilderness around them. They all seemed to be looking in the same direction and at the same spot. As he looked to the same point, he saw a red fox lurking in the undergrowth. No wonder for the family circle. Mr. Ogburn gave a loud yell which served its purpose. The fox then retreated back into the wilderness and immediately everything was back to normal. Was the fox just passing by and stopped off for a look-see, or did he have something else on his mind? We'll never know. So ease your mind with your own answer.

Mr. Ogburn plans to build another pond up closer to the highway some day and fence in some more land. It stands to reason that as the family grows, so will the home.

Have you ever been pecked by one of these geese? Well, if you haven't let me tell you that it's not just a peck. Actually, they grab about an inch of your skin in their beak and give it a good hard twist.

Even though Mrs. Ogburn says they will have duck for Sunday dinner, Mr. Ogburn is not too worried. Mrs. Ogburn is too scared of getting pecked to get close enough to them to catch one! ◆

**Although hand feeding of the family isn't done regularly, most of the birds will accept corn and other offerings.**



**It seemed like a good idea, this old bath tub, but the waterfowl had a better one: a pond of water . . . and that's what they got. Tub anyone?**

# The Red Fox

by Lunette Barber

THERE is no denying that the red fox is beautiful and cunning! The farmers do not want him and the fox hunters do, especially those who hunt on horseback. Usually when the fox is mentioned in North Carolina, the reference is made to the gray fox because it is found throughout the state. While the red fox was formerly found in the western part of the state, it has been introduced to the Piedmont and upper Coastal Plain where it is now becoming common.

The red fox resembles a small, sharp-nosed dog of slender build, with pointed nose, large erect ears, and long bushy tail. The upperparts are reddish yellow, mixed with the black-tipped hairs in the median line, the rump grizzled, reddish hairs mixed with white and black-tipped hairs; feet are black; the bushy tail is mixed with black, a black spot at the base and tail tip pure white. The underparts, cheek and inner side of ear are whitish, with the back of the ear black. Colors vary with the season, occurring also in several color phases.

Males are larger than females. The total length of the male is about 40 inches. The tail (combined vertebrae) is 16 inches long which is a great help to him for fast running. The hind foot is about 6 inches long. The average weight is 10 to 12 pounds.

The fox is no epicure; it feeds on grass and geese alike. Its chief food during the long winter appears to consist primarily of mice, rabbits, such birds as it can secure, carrion, frozen apples, dried berries such as grapes. In the spring and summer months, woodchucks, poultry, rabbits, small rodents, birds, snakes, turtles, and their eggs, an occasional young fawn, raspberries, and blackberries provide a varied diet.

When it partially eats an animal and does not want the remainder, it buries the food by digging a hole in the ground. The nose is then used both to push the dirt over the prey and pack it too. No scent is left by the nose; whereas, if the foot were used to do the packing the other foxes and dogs could easily find the hidden food by smelling the scent of the foot. Dogs often bury bones the same way.

As winter wanes, the foxes begin their nocturnal barking for this is the mating season. The gestation period is about 51 days, after which from four to ten are born in March or April. The red fox uses burrows in which to sleep and have its young. They favor abandoned farm land, apple orchard or semiwooded hills, thriving close to dense human population but are also common to areas remote from habitation. In fact there is probably no place in the state where they cannot and do not set up housekeeping if unmolested.

The male fox is quite considerate when it comes to feeding. He assists in feeding the young, beginning at the time they appear at the den's entrance when approximately six weeks old. The food consists of small rodents and other typical fox food that the parents gather in their forays and bring to the den's entrance for the young kits to feed upon.

They have some enemies such as parasites, diseases and birds of prey. Distemper, rabies, or mange may be among the diseases they have. Fox hunters and trappers take a small toll. The pelts are of very little value. Often when foxes are overabundant they are reduced by some of the above-mentioned diseases. There is an old story that the fox gets rid of the fleas by backing himself into the water until the fleas run onto a stick held in its mouth, and then he lets go the stick into the water drowning the fleas immediately. He is not familiar with man's pesticides it seems.

Fox hunting is great sport, whether by use of a few hounds, with a pack on horseback, or still hunting when snow covers the fields. Some are taken in traps. Fox pelts are used chiefly for trimming and scarfs. ◆

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Hunting Seasons End

By the end of February, which this year has 29 days, the hunting season for game will be closed except for raccoon and opossum. Legal hunting for these ends Saturday, March 1 except in and west of Surry, Forsyth, Davidson, Stanly, and Anson counties where the season ends February 18. In general the 1967-1968 hunting season ranged from fair to excellent, depending on the success of individual hunters in various sections of the state. There was a perceptible, but not outstanding, improvement in waterfowl hunting.

### Hunting Success Survey Planned

Some 15,000 Tarheel hunters who bought licenses during the 1967-1968 hunting season will get a mailed questionnaire from the Wildlife Resources Commission during late February. Names are selected at random from the Commission's hunting license-buyer files, and persons contacted by the questionnaire will be asked for information on how many trips they made afield, what species were sought after, how many killed, and so on. Hunters contacted in the survey may remain anonymous if they choose, and unsuccessful as well as successful hunters are requested to return the postage-paid quiz forms. Information gained from surveys of this type helps to plan future game management programs.

### Still Not Too Late

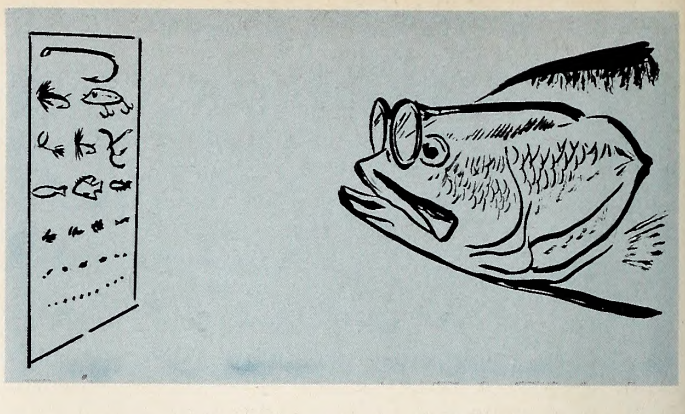
Wildlife Commission game biologists are in the process of distributing planting materials for upland game restoration, but it is not yet too late for persons wanting free materials to apply for them. Application may be made to local County Agriculture Extension and SCS offices, or Division of Game, Box 2919, Raleigh 27602. All applications will be processed on a first-come-first-served basis. Available are shrub lespedeza seedlings, lespedeza seeds, wildlife annual seed mixtures, and multiflora rose seedlings.

### Wildlife Federation Annual Meeting February 23-24

If you have not already done so, mark your calendar for February 23 and 24 to attend the annual meeting of the N. C. Wildlife Federation. Place is Charlotte, Heart of Charlotte Motel. The two-day meeting is open to all persons interested in and concerned with North Carolina's natural resources. Highlight will be the banquet at which persons who have done outstanding work in the field of conservation will be presented Governor's awards for outstanding achievements.

# How Well Can a Fish See?

**by J. H. Cornell**
Chief, Division of Inland Fisheries



FROM the way a bass can nail a passing plug, or the way a trout can come out from behind a rock and take a fly, fish must be able to see pretty well. but just how well—that is something else again.

It's too bad that fish can't talk. If they could answer a few questions and tell us exactly what they see, we would have a lot of new and very interesting information. Since there is no chance of their talking to us about it, we have to depend on them to tell us by their actions. From their actions, and the structure of their eyes, we can get some idea, at least, of how well they actually can see.

You can see that a fish has two eyes, but it is not until one of them is taken apart that you can tell just how much that eye is like our own. In fact, the eye of a fish is more similar to our eye than the similarity of any other parts of these two animals. It must be that Mother Nature has found very little to be done in the way of improvement on the structure of eyes in general. This similarity shows that although we have changed in many respects since the first animal moved out on land when the oceans receded millions of years ago, nevertheless the structure of eyes has changed scarcely at all. We find the parts of a fish eye almost exactly like our own. Light enters the eye through a transparent covering called the cornea. It passes through a hole in the iris, or colored part, and then through a lens which focuses the light and creates an image on the retina. The impression of this image is carried to the brain by the optic nerve. A fish even moves his eyeball by the same six muscles which control ours.

AN eye works much like a camera. The camera has a diaphragm to regulate the amount of light coming into it. In your eye, the iris does the same thing. When you come in at night from darkness to a bright room, it's hard to see for a few moments until the iris partly closes and reduces the amount of light entering your eye. Also, the lens of the camera bends the light rays and makes an inverted image on the film. The lens of your eye does exactly the same thing, and produces an image on the retina. Both fish eyes and ours function the same way. See Figure 1.

But there are differences. First, fish have no eyelids—presumably because they do not need them. The main purpose of our eyelids is to put moisture on the surface of the eyeballs. Since fish live in water, eyelids are unnecessary for this purpose.

You might think that the main purpose of our eyelids is to let us sleep. Actually, there is no reason to suppose that if we could keep our eyeballs moist, it would be necessary to shut off visual sensations in order to sleep.

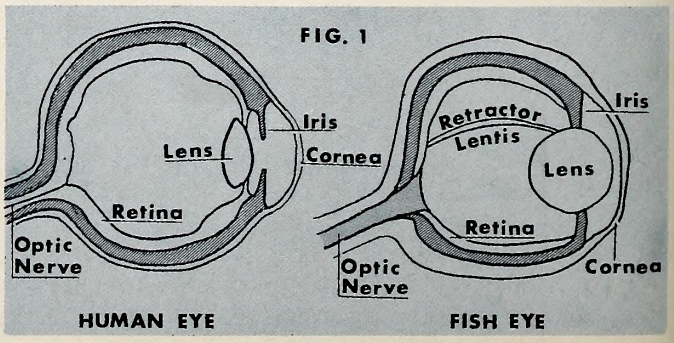
We have no trouble in sleeping without shutting off the sensations received by our ears. The fish is able to sleep even though sensations are picked up both by the nerves of seeing and hearing.

SO far as differences between the human eye and the fish eye are concerned, the one greatest difference is in the structure of the lens itself. In the human eye, the lens is eliptical—sort of canoe shaped. The lens of the fish's eye is round, like a baseball.

We are able to see objects, both near and far away, because the shape of the lens in our eye can change itself accordingly. The purpose of the lens is to bend incoming light rays so that they will focus on the retina. The light rays entering our eye from an object close by must be bent much more than the rays from an object far away. Changes in the amount of curve of the lens surface make a difference in the thickness of the lens, and we are able to get a sharp image in either case.

But the lens of a fish eye is a sphere, and does not change. Because the lens is round, many people have the impression that the fish must be nearsighted and cannot focus on far-away objects. That probably is partially true. The spherical lens pro-

**Comparing the human eye with that of a fish, we find many of the structures quite similar. The greatest difference is in the shape of the lens.**



vides for the greatest possible amount of bending of light rays when they pass through on the way to the retina. In the relaxed position, it is quite likely that the fish eye can focus best on objects close by. This seems to be a very wise provision of nature, however, because there is much less light under water than there is in the air. It would be impossible for the fish to see objects at any great distance, simply because of the lack of light.

Since excess light is no problem for the fish, it is not surprising to find that the iris of his eyes never changes. He always needs all the light he can get. And, in spite of his permanently spherical lens, the fish can change the focus for distance. There is a muscle in his eye which we do not have in ours. It can pull the lens closer to the retina than it is in relaxed postiion. This provides for the focusing of an image when an object is farther away. In this respect, a fish eye focuses for distance just like a camera. You move the camera lens out to focus on close objects, and bring it closer to the film when the object is far away.

Now that we have some idea of what a fish has to see with, let's take a look at what there is for him to see. In order to imagine how the world must look to a fish from his viewpoint, you will have to think a little bit about the refraction of light which you studied in school. When a fish looks at something under the water, the light rays travel from the object to his eye in a straight line and refraction is no problem. It is only when the fish looks at objects above the water surface that the light rays are bent and must give him a distorted idea of where things are.

IF you remember your science lesson, you will recall that light rays passing from a less dense to a more dense medium are bent toward the perpendicular. That bending is the angle of refraction. So far as a fish is concerned, a man standing on the bank of the stream and looking into the water must look to the fish as if he is nearly above him rather than out on the bank. The light rays, which the fish can see coming from the fisherman on the bank, are bent downward as they enter the water, and the man's image must register in his eye as being on the surface of the water, or rather in the air beyond it. See Figure 2.

The fish's whole picture of the world above the water surface, from horizon to horizon—the trees, the fisherman, or the osprey flying overhead—all must appear to him as being just outside a circular window at the water surface. You can bet that the fish keeps his eye on that circle at the surface of the water, too. In that circle he sees food which may be swimming above him or floating on the surface, and it is there that he sees the osprey which might like to eat him for dinner. That circle contains both food and danger for the fish.

If this all begins to sound confusing, you can see for yourself how this refraction business works. Get a cook pot, preferably a pretty deep one. Lay a penny in the middle of the bottom, and then move your head back until the top of the side just keeps you from seeing the penny. Now, don't move your head or the pot or the penny. Pour water in the pot —very carefully so that nothing moves. When the water level gets high enough, the light rays from that penny to your eye will be bent at the surface of the water, and you will able to see it with your head exactly in the same position as before. Obviously, the light rays from the penny to your eyes must have started upward nearly vertically, and then have been bent away from the vertical to your eye.

Now, if you will imagine that a fish is in the position of that penny, you can see that the light rays from anything outside of the water come into a space generally above him and then are bent down to his eye. So we must assume that anything outside the water appears to the fish to be almost above him. Now, we can figure that the fish can see pretty clearly those things that are under water and are near him. He cannot very well see things that are far away because there is not enough light under the water to see any great distance. We can also realize that he can see objects above the surface of the water, and that they must look to him as if they are in a circle at the surface above his head.

How big is this circle? It depends on how deep the fish is. The outside of the circle is always about forty-five degrees from the vertical. Actually, it is a bit less, because light rays coming to the fish from down near the horizon are nearly parallel with the water. These rays reflect off the water instead of entering it, and all around this window the fish sees through, the water surface acts as a mirror.

Now, what does all this mean to you as a fisherman? It means that you are less likely to scare the fish if you keep down low on the bank so you will

**Perhaps this is the way the world above the water appears to a fish. The text describes why.**

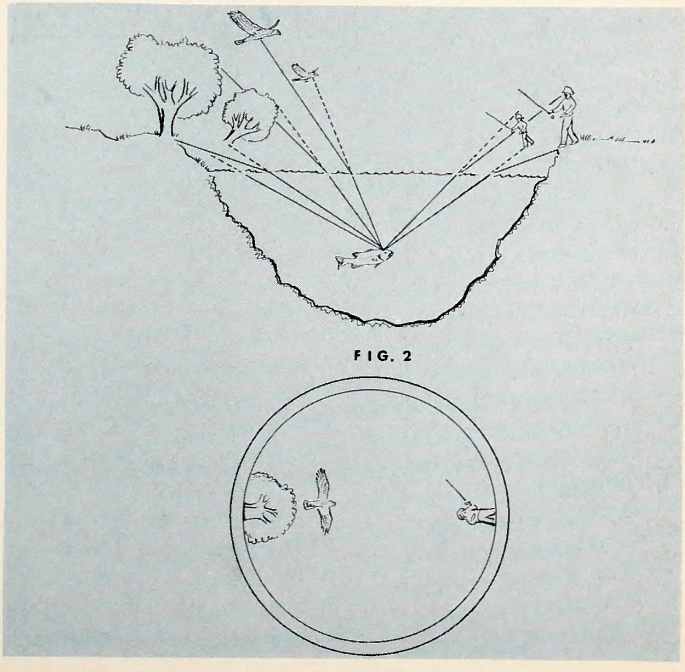


FIG. 2

not be such a big object in his window. You will catch more fish if you don't move around too much. He can see you, and motion scares him. Fish facing the sun, so your shadow will not move across the water over the fish's head. Use a long leader. Your line, lying on the surface, must look bigger to the fish than a tree limb. And when the wind blows a little so there is a chop on the water, forget these rules and just fish. The waves will break the fish's window into a thousand pieces, and he can't see you anyway.

The fish has another complication in this business of seeing. He has an eye on each side of his head, and you might think that each eye would pick up a completely different picture and send it along to his brain. Seeing two pictures at once must be confusing to the fish. To some extent, he probably does have two separate fields of vision, certainly so far as motion is concerned. The ability to see objects on both sides at once should be of considerable help in finding a dinner or in keeping from being a dinner for someone else.

But these fields of vision do overlap in front of the fish, and there is at least a small area in front of his nose where both eyes can see the same object at the same time. It must be that the fish can see better in this area than he can when either eye alone is carrying the image, because he will usually turn and face a lure before he decides to strike it. See Figure 3.

Remember the day last summer when you were fishing in that clear pool below the mill dam? Remember how the bass acted when he came up to your wet fly which was moving slowly along the bottom? He did not come up to it broadside and look at it with one eye. He moved up until it was a few inches in front of his nose, and must have been looking at it with both eyes. You remember that he stayed several inches away for a few moments, and looked at it carefully. Then, when you gave it a twitch, he made a dive for it, and was on.

It seems obvious that when a fish really wants to concentrate on something, he arranges himself so that the object he is looking at is within the field of vision of both eyes. From this, it is safe to assume that both eyes register the same image on his brain when the object is in their common field of vision, even as our eyes do.

ONE problem of how well a fish can see is concerned with color. For many years there has been a question in many fishermen's minds whether the variously colored flies and plugs that are on the fishing tackle counter really make any difference to the fish, or whether all those different colors are just to catch the suckers who come in to buy them. Well, we now have some pretty good information, and straight from the fish, that they can distinguish colors.

In one case, trout in a pool had bits of colored cork thrown on the surface of the water above them. There were a lot of colors—blues, greens,

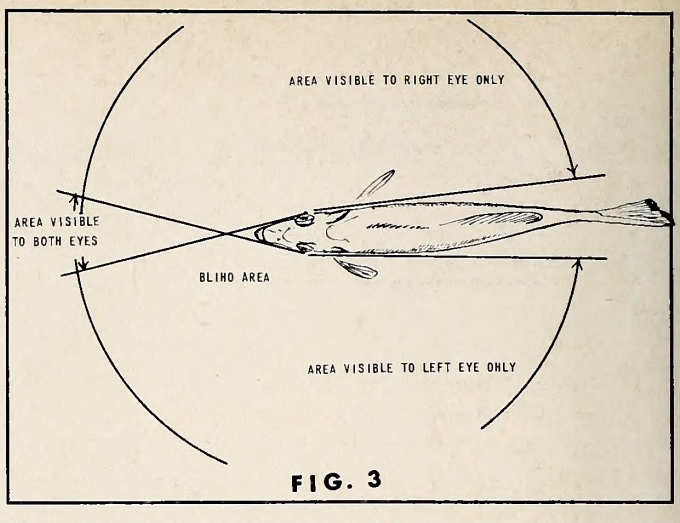



FIG. 3

**It has been demonstrated that a fish sees different areas with each eye, has a small "blind" area, and a cone of vision visible to both eyes.**

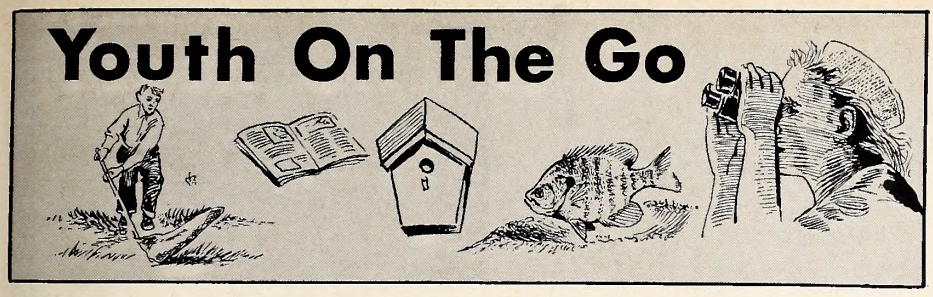
reds, yellows, and shades of each. The fish paid little attention to other colors, but proceeded to try to eat all the red ones in sight. Yellow, incidentally, was the second choice. In this experiment, there was no intentional training or conditioning of the fish. Of course, it might be that their hatchery food was red, but they proved that they could recognize color and show a preference.

Other investigators put some bluegill sunfish in an aquarium, and put a feeding cage in each end. One feeding cage was illuminated with a green light and the other with a red light. The cage under the red light contained worms, and the cage under the green light was empty. To begin with, the fish showed no response to the colored lights. In a short time, though, they learned to go to the red light for food. The lights were changed. Sometimes the box at the right end was red and sometimes the red light was at the left end, but the fish recognized the red light and went to it. And when the feeding system was reversed, they learned to go to the green light just as well. Certainly, they must have distinguished the color.

It was not a question of color intensities, either, because they would go to the color which indicated food, regardless of whether the light was very bright or very dim. And so, for underwater lures at least, you had better continue to carry a pretty good selection of colors so you can feed the fish whatever they want on that particular day. It is quite likely, though, that the color of surface lures is of less importance. There they are seeing a lure against the light background of the sky, and colors do not show up nearly as well.

Then comes the question, at night why are black flies more effective than white ones? Actually, the fish is seeing the black fly against the lighter background of the sky, and it gives a better contrast. If you want to try this, hold a black fly up toward the sky and compare it with a light colored one some night. You will find that the black one shows up better than the light one. We will just have to guess that that is the way it looks to a fish, too. ◆

# Youth On The Go



THIS month we would like to recognize Miss Annette Kennedy of Raleigh, North Carolina. Annette is a 14-year old, ninth grader at J. C. Daniels Jr. High School.

Her vivid interest in wildlife began even before she started to school. As soon as Annette was old enough to play in her own backyard, she was bringing bits of wildlife into the house. It seemed that Annette could find more species of bugs, butterflies and bird feathers than her parents knew the names for.

Mrs. Kennedy didn't take her daughter's interest lightly. She and Annette would search reference books to find the necessary data to label an item correctly and add it to a collection. Mrs. Kennedy's kitchen has a bulletin board on which Annette would display her treasures of the outdoors.

Annette knew far more about wildlife than most children her age. Most of this had to be credited to her mother's interest in the child's interest.

Like all children, the Kennedy children had pets. Besides the dogs, cats, and fish that most families have, the Kennedy household has also had mice, lizards, and opossums.

Coming home from a fall trip, Annette had collected some moss to add to her collection and two lizards. All of the excitment started when the two lizards got loose in the car. For Annette's parents and grandmother, the trip home was an unusually long one; but once home, they found the lizards had only made themselves at home under the moss.

Mr. and Mrs. Kennedy were even willing to put up with them in the house; that is, until they escaped in the Kennedy home. Much to Annette's regret, after they were rounded up, they absolutely had to go. That was the end of Annette's pet lizards.

It was the same with the mice, after searching the house for them half one night, they had to go.

As for Mr. Opossum, he more or less just wandered in one day and after a reasonable visit, wandered back out.

Annette says that her main interest is in butterflies of which she has a large collection; and moss of which she also has a collection.

Annette's enthusiam in something is contagious to those around her. Her interest in mushrooms, for example, which started as a school project. It seemed she wanted to pick some mushrooms one day while on an outing with her parents and grandmother. Her grandmother was leary of even touching the "nasty things." But then through Annette's enthusiasm over them her grandmother was not only helping her pick some, but also exclaiming over the various sizes, shapes and colors of the different varieties.

Annette doesn't limit her interest to the animal aspect of wildlife, but also the plants that make up the beauty of our creation.

A garden was started years ago by Annette who brought home things she thought "were pretty." Little by little, her garden grew. The more rare plants were ordered from different places in the mountains and other sections of the state.

No special care is used for her garden. Each species seems to do better when they are not attended to. They grow better on their own.

**Some of Annette's "pets", like this possum, needed no prompting to take up residence . . . or to leave!**

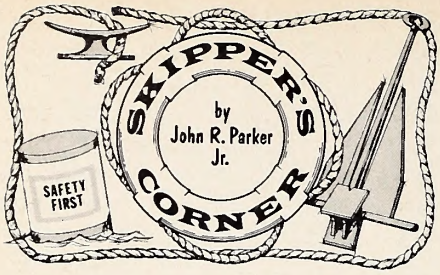
Her garden consists of such flowers as lady's slippers, bloodroots, may-apple, jack-in-the-pulpits, hepaticas and trilliums.

Some of these flowers bloom every year for Annette while others bloom only every two or three years. Still, they are beautiful and Annette keeps adding to the garden every chance she gets.

When asked what future plans she had for her wildlife interest Annette replied, "I plan to acquire anything I can. Usually as far as pets are concerned, no plans are necessary. They seem to just happen in and happen back out, thanks to my parents."

So Annette, we, and other wildlife enthusiasts, salute you as an outstanding example of youth on the go in the wildlife world. May your interest continue and may there be more of your kind in the future. For it is your type that will keep our present wildlife abundant and who will preserve and teach wildlife to generations to come.

More power to you, Miss Annette Kennedy. ⬍ **Ralph Mears**




In last month's Skipper we agreed that perhaps a little reminiscing about our experiences in boating might promote safer trips afloat for 1968. We were thinking, of course, of those trips that almost ended in an accident. Maybe the suggestion inspired a little fireside chat. If so, how did you go about it? In other words, did you use a little salt in your talk?

Nautical terminology is used by landlubbers as well as seafaring men. Terms such as "learn the ropes," "scuttlebutt," "pipe down," "shake a leg," and "shanghaied" all had their beginning in the world of boats. Such terms may be a little excessive aboard a small craft. And even practical terms such as "fender," "cardinal point," or "binnacle" may not be a must for the trailer sailor. But there are a number of terms that, while being very useful, will also permit you to chat with an experienced marina attendant with some nautical flare.

The list offered here is much shortened due to space, and it is certainly not the last word. However, learn these and you have a good start.

Learning the language then is another good way to cast off for the boating year of 1968.

Abeam: at right angles to the centerline of a vessel.

Aboard: on or in vessel. Close aboard means near a vessel.

Adrift: loose from moorings, or out of place.

Aft: in, near, or toward the stern of a vessel.

Aground: resting on or touching the ground or bottom.

Anchor light: white light displayed by vessel at anchor. Two such lights are displayed by a vessel over 150 feet in length.

Astern: toward the stern; an object or vessel that is abaft another vessel or object.

Auxiliary: an assisting machine or vessel.

Bail: to dip water out of a boat with a bucket. A hoop or ring; a half hoop or yoke.

Beam: width, breadth; greatest athwartships width of a vessel.

Below: short for below decks; below the main deck.

Bend: a general class of knots used to join two lines together.

Bilge: lower part of vessel where waste water and seepage collect; the curved part of the hull where the sides and bottom meet.

Boathook: wooden staff with metal hook and prod at one end; used to fend off or hold on.

Bow: forward section of a vessel.

Buoy: floating marker anchored by a line to the bottom, which by shape and color conveys navigational information; may be lighted or unlighted. Pronounced "booee."

Burdened vessel: the vessel which by the Rules of the Road must keep out of the way of another vessel.

Cast off: to throw off; to let go; to unfurl.

Centerline: imaginary line running from vessel's bow to stern.

Chock: steel deck member, either oval or U-shaped, through which mooring lines are passed. Usually paired off with bitts.

Cleat: a small deck fitting of metal with horns; used for securing lines; also called belaying cleat.

Cockpit: well or sunken space in a boat for the use of the boat crew or passengers.

Course: direction steered by a vessel.

Dead ahead: directly ahead of the vessel's bow; bearing 000° relative.

Dead in the water: said of an underway vessel that is making neither headway or sternway.

Deck: on a vessel corresponds to the floor of a building on land.

Displacement: weight of water displaced by a vessel.

Draft: depth of water from the surface to the vessel's keel; a detail of men.

Even keel: floating level; no list.

Fast: snugly secured; said of a line when it is fastened securely.

Fathom: a six-foot unit of length.

Fender: canvas, wood, rope gear or old rubber tire used over the side to protect a vessel from chafing when alongside a pier or another vessel.

Fend off: to push away; pushing away from a pier or another vessel when coming alongside, to prevent damage or chafing.

Freeboard: height of a vessel's sides from waterline to main deck.

Gear: general term for lines, ropes, blocks, fenders, etc.; personal effects.

Ground tackle: term referring to all anchor gear.

Gunwale: upper edge or rail of a vessel or boat's side. Pronounced "gunnel."

Headway: forward motion of a vessel.

Heave to: to bring the vessel's head into the wind or sea and hold her there by the use of engines and rudder.

Hull: framework of a vessel, together with all her decks, deckhouses, inside plating, or planking, but exclusive of masts, rigging and all superstructure items.

Keel: backbone of a vessel, running from stem to sternpost at the bottom; the principal longitudinal timber of a boat, extending from the stem to sternpost and forming the backbone of the boat.

Knot: one nautical mile per hour. (Never say "knots per hour." This would be the same as saying "miles per hour per hour.") Also, a knot, tie, or fastening form-

ed with rope.

Mooring: securing a vessel to a pier, buoy, or another vessel; or anchoring with two anchors.

Nautical mile: 6,080.2 feet, or about a sixth longer than a land mile.

Oarlock: device to hold oars when pulling a boat; also called rowlock.

Painter: a line in the bow of a boat for towing or making fast.

Pitch: the heaving and plunging motion of a vessel at sea.

Port: left side of vessel facing forward; a harbor; an opening in the vessel's side. The usual opening in the vessel's side for light and air is also a port. The glass set in a brass frame that fits against it is called a port light.

Privileged vessel: the vessel with the right of way. See Burdened vessel.

Roll: the side-to-side motion of a vessel at sea.

Running lights: lights required by law to be shown by vessel or plane when underway between sunset and sunrise.

Screw: the propeller; the rotating, bladed device that propels a vessel through the water.

Scull: to propel a boat by working an oar from side to side over the stern; to propel oneself in the water by working hands and forearms in a figure-eight motion.

Starboard: right side of a vessel looking forward.

Steerage way: slowest speed at which a vessel can be steered.

Stem: upright post or bar at most forward part of the bow of a boat. It may be a casting, forging, welding, or made of wood.

Stern: after part of a vessel.

Stow: to put gear in its proper place.

Swamp: to sink by filling with water.

Transom: athwartship piece bolted to sternpost; planking across stern of square-sterned boat.

Trim: angle to the horizontal at which a vesel rides; that is, how level the vessel sits in the water; shipshape.

Underway: a vessel is underway when not at anchor, made fast to the shore, or ground. She need not be actually moving; she is underway as long as she lies free in the water.

Wake: the track left in the water behind a vessel.

Waterline: point to which a vessel sinks in water; line painted on hull showing point to which vessel sinks in water when properly trimmed.

Yaw: zigzagging action of a vessel as it is carried off its heading by strong overtaking seas. This motion swings the vessel back and forth across the intended course.

## Certain Plastic Lifesaving Devices — No Longer Approved

The U. S. Coast Guard recently amended federal regulations making certain plastic lifesaving devices obsolete after November 1, 1967.

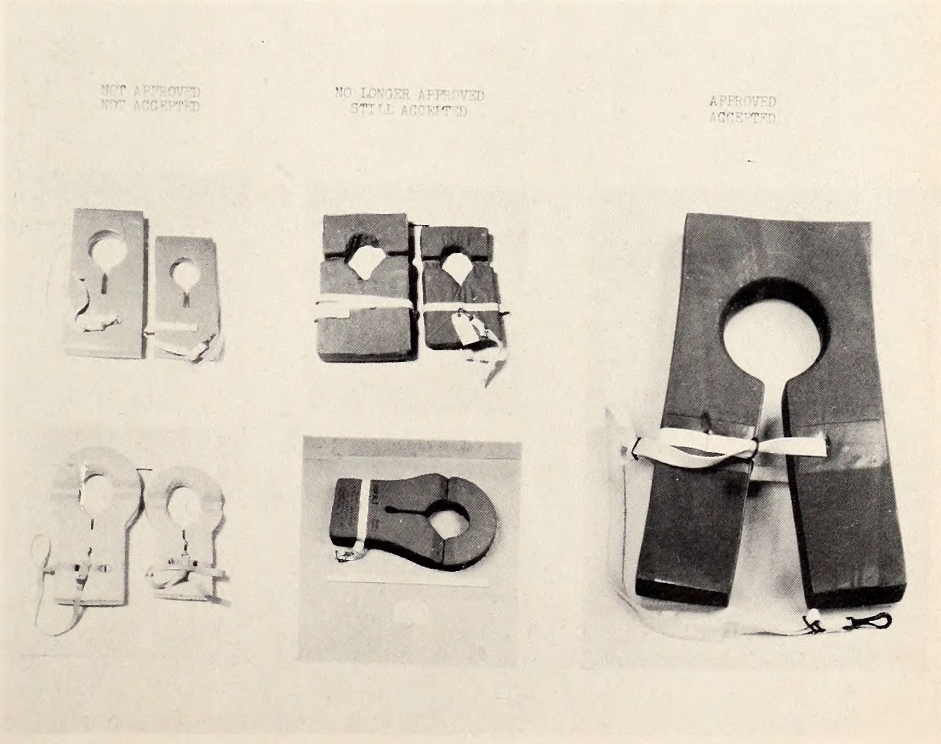
Vinyl coated unicellular plastic foam life preservers with a solid bib front are out. Beginning November 1, they no longer meet Coast Guard requirements. These preservers were taken off the acceptable list when tests revealed they became stiff and hard to put on in cold weather. The head openings couldn't be stretched enough to easily slip the preserver on.

The same type of unicellular plastic foam preservers not slit in front but cloth covered will no longer be approved either. However, previously approved cloth covered devices are still acceptable as meeting Coast Guard requirements if they are in good condition.

The only vinyl coated unicellular plastic foam life preservers that are both approved and accepted are split in front and have a revised body strap arrangement. The body strap keeps the front halves of the device together when it is worn. Low temperatures do not affect these preservers and they are still reversible.

The unicellular plastic foam life preservers no longer approved are included in Coast Guard approval numbers 160.055/1/0 through 160.055/29/0. Life preservers bearing approval numbers 160.055/50/0 or higher are acceptable under the amended regulation.

U. S. COAST GUARD PHOTO



# Winter Worker

**by David M. Brinning**

Photos by the Author

Late in the month of December as I walked along a path behind a friend's house, I noticed tiny bits of wood strewn all about on the path beneath an oak tree. A glance upward disclosed nothing; however, when I moved off and looked again at the tree, up about 25 feet I saw what appeared to be the beginnings of a freshly cut hole in the trunk. But, this was mid-winter and hardly a time for a woodpecker to be building a nest-hole, even if only for practice.

Forewarning my friend, soon afterward I rose early and crept back to a point along the side of his house. I could hear a faint but distinct tap, tap, tap, tap. Peeking around the side of the house, I looked up in the tree at the spot previously noted and there he was, the little "winter worker", a downy woodpecker. Constanty on the alert, when he perceived my movement—off he flew.

Still unable to believe this little bird was actually going to dig out a nest-hole, I left but checked back a few days later, and, lo and behold, he was still hard at it. Working only a few hours in the morning and then again in the early afternoon, constantly interrupted by the various sounds and movements that would take place in the vicinity of the tree causing him to fly off, he would wait for the disturbing sound or movement to cease, then fly back, to work some more.

As leery as this little fellow was, any attempt to get a pictorial progress record seemed highly improbable. Each time anyone would appear or any noise occur within the vicinity of the tree or backyard, off he'd go. So trying an old ruse, I got a young naturalist friend, Philip Biggs, to approach from around the side of the house to attract the bird's attention. Immediately off went the bird to a nearby tree to watch this latest menace, Philip, and with camera in hand I slipped around the other side of the house to a point behind a bush. Sitting here on the ground about 15 feet from the base of the tree, I arranged an old raincoat over me so that the long lens on the camera poked up and out one sleeve. On a pre-arranged signal Philip moved off letting the bird see him go. In about 10 minutes the bird was back in the oak tree, although covered as I was I couldn't see him, my vision being limited to only what I could see through the camera lens which was aimed at the hole in the tree. As he worked his way towards the nest-hole, I could hear his random tapping, when to my camera eye he'd pop into view, perched on the trunk near the hole where he would remain for a minute or so checking out that strange patch of material that was my covering. Then quieting his fears, he would commence work again. Everytime I snapped the shutter, off he'd go. On seeing no movement, before long he would return and we'd go through the same routine, snap, fly, wait, return, snap, fly, wait, return. Along about three in the afternoon he'd take off for the day.

Philip and I went through our little ruse of Philip's attracting the bird's attention as I got into position, on successive days as I tried to get a series of progressive shots. Then one day, after the little "winter worker" had seemingly finished the nest-hole, he appeared but didn't stay around and we began to wonder why would he go to all this work in mid-winter only to go off and leave it. Several days later when he failed to reappear, we examined the nest more closely and found what perhaps was the explanation for his leaving. So diligent had he been, that he bored a hole right out the back of the nest at the bottom. And, who wants a home with the cold winds blowing in the back side and out the front; one little winter worker didn't, that's for certain.

Some 25 feet up amid the winter branches, the downy woodpecker hammers away at its prospective home. Even the ceiling gets attention (above) from the industrious bird. Below, excavation continues with base of the nest being hollowed out.

Above, the hard-working downy inspects its job to see where to chip away next. Below, bits of wood (note chunk in bill) are thrown out as the work nears an end.

# A Job Well Done

**by Lunette Barber**

PHOTOS BY JACK DERMID

IT all began when each child in the third grade of Tanglewood Elementary school, Lumberton, North Carolina, was given a copy of a Wildlife Commission pamphlet, WINTER BIRDS IN YOUR BACKYARD. On the back of the booklet was a pledge. No, not the pledge to the American flag, but the Conservation Pledge. The children knew the first pledge but did not know the one on the booklet. After reading and studying the pledge—I GIVE MY PLEDGE AS AN AMERICAN TO SAVE AND FAITHFULLY TO DEFEND FROM WASTE THE NATURAL RESOURCES OF MY COUNTRY—ITS SOIL AND MINERALS, ITS FORESTS, WATERS, AND WILDLIFE—it was decided that *AIR* should be added to the conservation pledge. So the children wrote to Dr. Louis S. Clapper, Editor of *National Wildlife Magazine,* expressing their desire to have the word "air" added to the pledge. Hearing from him definitely motivated the study of a unit on Natural Resources.

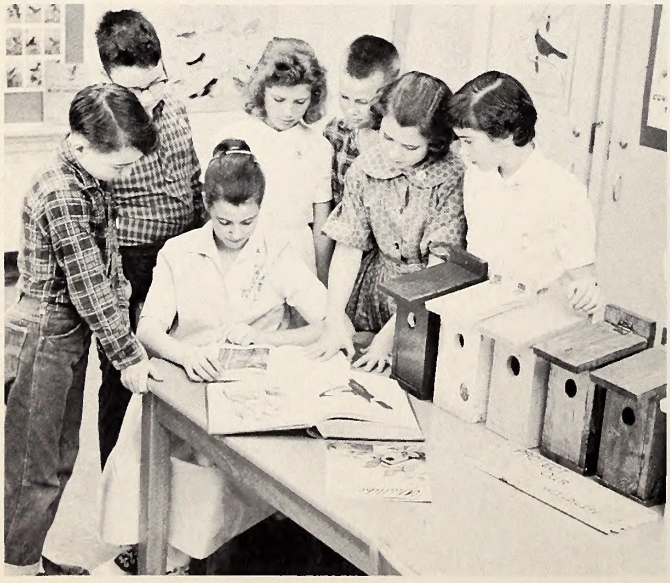
The pupils accepted the following objective: To find out all they could about soil, minerals, forests, waters, air, and wildlife. The large objectives the teacher had in mind were to awaken an interest in conservation and to emphasize the need to conserve our natural resources; to give each child an opportunity to use his own ideas, mechanical, creative and artistic skill; to help boys and girls to work together; to encourage the child to use his initiative in procuring information; to awaken an interest in the study of soil, minerals, forests, waters and wildlife; to bring about a realization of the value of soil, minerals, forests, waters, air, and wildlife; to help each individual feel a responsibility toward conservation of our natural resources; to create the habit of observation; to show how our natural resources help man; to promote a real interest in our natural resources; to develop a unit of work on a subject of particular interest to the children and one about which they had some information; to develop skill in locating information, oral expression, creative thinking, and writing; to motivate and correlate the following school subjects: reading, language, writing, spelling, arithmetic; science, social studies, art, music and physical education.

Thus the unit was developed. Interest increased; pictures were collected and placed on a bulletin board; a special reading table of books on soil, minerals, forests, air and wildlife was set up in the classroom; books were secured from the homes of the pupils and the personal collection of the teacher.

Children began reading about and observing our natural resources. Science supplementary books were used as guides. A student teacher instructed the boys and girls concerning many phases of conservation. The materials and knowledge she brought to the classroom were most beneficial. Children were extremely interested in the fact that all through nature there is a constant giving and taking, although, plants, insects, fish, birds, reptiles and animals do not carefully plan this. They just live naturally and without thinking as they use what they need from other living things and from soil, water, air, and sunlight. This way of life has developed over millions of years.

The resources were studied in the order they appear in the pledge. A representative of the North Carolina Wildlife Resources Commission visited the classroom and brought a copy of the book, OUR WILDLIFE NEIGHBORS, for each child. Much interest was stimulated by the pictures and magazines she provided, and from the books much was learned about wildlife in North Carolina.

**Song birds almost always stir the interest of youngsters. Bird housing was the project here.**



**There is no substitute for field experiences in teaching about Nature. A nature trail helps.**

Activities engaged in while studying the unit were group discussions; reading for enjoyment and information; giving oral reports; writing individual compositions; keeping word lists and learning to spell needed words; enjoying poems and learning choral readings; writing original rhymes; making and reading experience charts; collecting and mounting pictures; making trees, mammals, birds, and fish from construction paper; setting up a miniature museum; making posters; assembling individual booklets; creating a large bulletin board —"Conservation in Spring;" feeding birds; listening to bird calls; setting up exhibits of different types of soil; observing trees; seeing films and filmstrips on trees, soil, air, mammals, fish and water; using transparencies (for overhead projection) of topics related to conservation; *taking field trips in connection with the unit;* learning and s i n g i n g songs about the unit; writing letters in connection with the study; writing letters of appreciation; studying famous paintings related to the unit; and making radio and television committee reports.

Some of the important meanings developed were: accurate information is found by careful observation and by consulting accurate source material; soil and water are recognized as our basic natural resources; green plants, with the help of sunlight, air, water and minerals from the soil, are wonderful food factories. From the air they take a gas, carbon dioxide. From the soil they take water. With the help of the green coloring matter in their leaves, they somehow trap the energy of sunlight and use it with the carbon dioxide and water in their leaves to produce a form of sugar. From the soil, plants also take minerals. Minerals are part of the soil's great treasure; some birds are enemies of one another; some help one another. Some fish are enemies of one another; some help one another. Some mammals are enemies of one another; some help one another in their habits. Mammals, birds and fishes are well fitted to live where they do and to obtain food; all living things are alike in one way: they all depend on the work of other living things in order to stay alive themselves. Every single one takes something from other living things.

In the study of wildlife, the children learned that a refuge is an area set aside for the protection of wildlife. Men now protect game birds by law and have a certain time for hunting seasons. These birds, waterfowl, like ducks and geese, and land birds like quail, wild turkey, and grouse, are valued by sportsmen. Men have helped to get laws passed and they have helped to set up state and national conservation departments whose job it is to enforce these laws and to build up the numbers of game birds as well as of fish, game and furbearers. They were also made to realize they may help provide shelter for birds by leaving trees, shrubs or grasses in little used parts of fields or gardens. Boys and girls can put out birdhouses, bird feeding trays and bird baths to help attract birds to their OWN BACKYARDS.

A note from the teacher, Miss Ruth Prevatte, 500 Carthage Road, Lumberton, North Carolina, 28358.

"Since soil and water are recognized as our basic natural resources, the way we manage these resources and their products—plants and animals—is important in determining our welfare.

"In order to keep our land productive, our people healthy and our country strong and beautiful we must emphasize conservation and wise use of soil and moisture on croplands, grasslands, and woodlands.

"All of us have a share in the job to be done. How well this is done does not depend entirely on landowners and operators. Teaching conservation will definitely help boys and girls become aware of its importance."

A copy of the unit, OUR NATURAL RESOURCES, may be obtained free on request from the Division of Education, Wildlife Resources Commission, Raleigh, N. C. 27602 ⬍⬍

**Several skills can be put to use in making posters illustrating conservation as this one does.**

**Demonstrations conducted in the class room are also effective. Water runoff is measured here.**

# Let's Not Release Game Farm Wild "Turkeys"

**by Thad Cherry**
Turkey Biologist

**This is a wild turkey, trapped in an area where they were plentiful and transported to a section of good habitat, few birds.**

NORTH Carolina is the only southeastern state that admits to a declining wild turkey population. The exact reasons for this decline are quite indefinite and most likely very complex. One definite conclusion we can work with is that we must determine and expose the nature of the reasons for the decline, and then set out to overcome them.

Several possible factors which might contribute to our declining wild turkey population are frequently brought up in discussions of this subject. It is frequently reported that both in-hunting season and out-of-season poaching take a heavy toll of our wild turkey—without any regard to age, sex, numbers, or any reasonable limits. There is no effective means of enforcing season bag limits, and it is most difficult to restrict hunters to taking gobblers only. Much of our better wild turkey habitat is rapidly being destroyed, making the turkeys more vulnerable to both predators and the gun as they move out to new territories or attempt to adapt themselves to their impaired habitat. And at the same time, while we appear to be the only southeastern state with a declining wild turkey population, we have the longest turkey hunting season in this part of the country.

## Big Problem

As if we haven't already mentioned enough problems to explain our declining wild turkey population, we are faced with still another serious problem—that of sportsmen and landowners releasing pen-raised game farm "wild" turkeys in areas where native wild turkeys are struggling to survive. This practice has been recognized by biologists all over the country to be very detrimental to any existing native wild turkey flocks in the release areas.

If we could think of our declining native wild turkey population as a bed of smoldering coals which need to be fanned back to fire, then we could consider the releasing of game farm turkeys in areas already inhabited by native wild turkeys as POURING WATER ON THE COALS. This article will describe the extent to which game farm turkeys have been recently released in North Carolina, and some of the ways in which this practice can do great harm to our native wild turkeys.

Recently, a survey was made of all known releases of game farm "wild" turkeys in North Carolina since 1960. Survey report forms were distributed to all wildlife protectors, who, through their own personal knowledge and through contacts with landowners and sportsmen, compiled the requested information for their respective work areas.

The great majority of known releases of game farm turkeys since 1960 have been made in the eastern Piedmont. Two additional releases were made in the Coastal Plains. *All* reported releases were made in areas already inhabited by native wild turkeys. One hundred and eighty-two turkeys were reported released in six counties, as tabulated below:

| *County* | *Number of Releases* | *Number of Turkeys Released* |
|---|---|---|
| Beaufort | 1 | 2 |
| Pitt | 1 | 15 |
| Alamance | unknown | 60 |
| Orange | 17 | 61 |
| Chatham | 5 | 35 |
| Richmond | 1 | 19 |
| | TOTAL | 182 |

It should be pointed out that while this survey covers only known releases since 1960, this practice of releasing game farm turkeys has been going on for a long, long time. For several years, the state government itself was engaged in releasing "wild" turkeys produced at its elaborate game farm—before the formation of the Wildlife Resources Commission.

While most of the recently-released game farm turkeys have been obtained from North Carolina sources, some have been obtained from other states. In Pitt County, the 15 turkeys released in 1961 were hatched from eggs of Pennsylvania stock. In 1955, 375 New York turkeys were stocked in Craven County. In 1960, five turkeys from a West Virginia hatchery were released in Chatham County.

At any rate, pollution of our native wild turkey stock has been going on for a long time by game farm stock from hither, thither and yon. The cross-breeding and hybridization which often results from placing game farm turkeys in areas already inhabited by native wild stock in almost all cases has the tendency of degenerating the wild stock. Game farm turkeys are often carriers of certain poultry diseases to which they themselves are immune. Entire flocks of wild turkeys have died out as a result of coming into contact with contaminated game farm stock.

### Poor Bet

Game farm "wild" turkeys are notoriously susceptible to predators and the gun. The keen, highly developed sense of wariness which contributes so greatly to the native wild turkey's abilities of self-preservation is a trait not so well developed in domestic or semi-domestic turkeys. So it seems that if a sportsman or landowner wants to completely eradicate the wild turkey in any particular area, and if he is unable to do so with a gun, his next best bet is to release some game farm "wild" turkeys in the area. There is a good chance the wild turkeys will contract and die out from some disease undetected in the relased stock. Then, it won't be very long until the game farm birds will probably have fallen to predators because of their lack of self-preservation sense.

The only instance in which the release of game farm turkeys for restocking purposes can be biologically justified would be the releasing of the semi-domesticated birds on isolated areas on which there are *no* native wild turkeys present, and then it is justifiable only under the following conditions:

1. There is *no* chance the game farm turkeys will spread to range occupied by native wild turkeys. (If this chance exists, you can bet the wild turkeys would already have populated the area if conditions were suitable.)
2. The release area has been evaluated as to suitability, and any needed habitat improvements have been carried out.
3. There is no available source of trapped native wild turkeys.

It is easy to understand how the sportsman or landowner could think he can solve the problems of a low, static wild turkey populaton by simply adding more turkeys. But the basic problems at hand are much the same as those we face in other fields of game management. No matter how much stocking you do, you cannot increase any population permanently unless certain other critical conditions are optimum.

One of the most fundamental concepts of game management is that of "carrying capacity." Any given area can maintain wildlife populations only to the extent that it can support them with its food, cover, and other critical requirements such as protection from natural and unnatural predation.

When any one or combination of the critical properties of good habitat is reduced below the optimum, the carrying capacity—or number of game animals which the area can support and maintain—is correspondingly reduced. And restocking the area with additional game animals will not increase the carrying capacity of the area, and, therefore, cannot result in a sustained increase in the population. A sustained population increase cannot be attained until the carrying capacity of the area is increased by correcting the habitat and associated difficiencies. If there remains a reduced population of the desired species present on the area, you can bet your bottom dollar they will be willing and able to restock the area themselves—when and if the limiting factors are eliminated.

### Important Concept

In wild turkey management, this carrying capacity concept is just as important as it is in any other field of game management. We have few areas in North Carolina which support the high turkey populations we would like them to support. Many of these areas contain small flocks of wild turkeys which reproduce only enough to maintain themselves in small, scattered flocks. Why don't these small, scattered flocks expand and spread like they should?

The solution in such cases is certainly not the releasing of game farm turkeys—or trapped native wild turkeys. The problem lies within the habitat. "Within the habitat" lurk a wide variety of possible culprits. Perhaps there is a scarcity of well-distributed clearings and openings within the forest. Perhaps there is no permanent water supply. Perhaps there is an abundance of free-running dogs and cats. Perhaps there are a few unscrupulous poachers. I venture to submit that we have a number of seemingly good turkey areas which suffer from various combinations of these problems, especially combinations including the latter two. And adding more turkeys to such areas only compounds the problems—or puts more meat on the wrong table.

Fish and game departments other than our own have become aware of the dangers and impracticalities of releasing game farm turkeys. Some have achieved this awareness more recently than others. Even Pennsylvania, with its reputation for success with game farm turkeys, has recently restricted the release of such turkeys to isolated areas having no wild stock present. The game and fish departments now realize the dangers of introducing domestic poultry diseases to the susceptible wild turkeys and the possibility of degenerating the native wild stock through crossbreeding by releasing game farm turkeys.

However, sections of North Carolina turkey range which formerly supported good populations have been contaminated by private release of game farm turkeys. And then, when the turkey populations begin to decline even faster, more and more semi-domestic turkeys were released — further compounding the problem. And there appears to be no end to this in sight.

Should we not as sportsmen and landowners more strongly voice our opinions against practices which can only impede any comeback of our wild turkey populations? Perhaps we should initiate and support new legislation which would prohibit certain unsound practices. At any rate, we need to realize that the contamination and degeneration of our native wild turkeys with semi-domestic game farm turkeys is one of the contributing factors to the decline of our wild turkey population. ◆

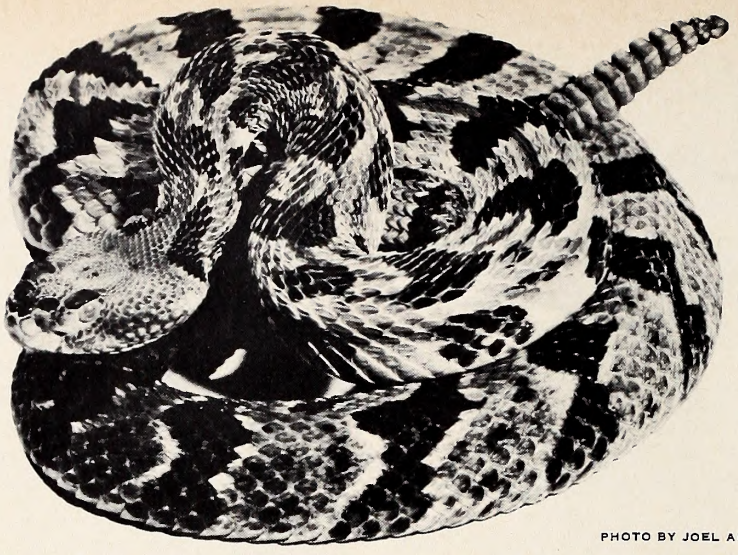


PHOTO BY JOEL ARRINGTON

# Canebrake Rattlesnake

**Franklin F. Snelson, Jr. and William M. Palmer**
Cornell University and N. C. State Museum

ONE of the most impressive and colorful of all eastern rattlesnakes, the canebrake, *Crotalus horridus atricaudatus,* is a reptile well known to persons living in eastern North Carolina in or near areas sparsely populated with humans. Common names for this large viper vary from locality to locality and probably also from individual to individual, but two that we have heard used most often are timber and swamp rattler.

The canebrake rattlesnake is a large form and commonly attains a length of close to 5 feet. The largest specimen which we have examined measured 66 inches in total length and 10 inches in circumference. This large individual was collected alive in Pamlico County and is now on exhibit in the State Museum. Background coloration of the canebrake varies from shades of brownish and grayish to pinkish with a russet stripe about 3 scales wide down the center of the back. The stripe is most conspicuous on the anterior portion of the body and may become obsolete toward the tail. A dark diagonal bar extends from the eye to the angle of the jaw. The tail is black and the underside of the body is light but finely stippled with dark flecks.

This large rattlesnake ranges from southeastern Virginia to northern Florida and westward into eastern Texas. From the Gulf States the distribution extends northward into the southern tip of Illinois, southeastern Missouri, and western Kentucky. In North Carolina the canebrake is most frequently found in the Coastal Plain, but apparently ascends several of the wilder river bottomlands into suitable habitat in the lower Piedmont. Interbreeding with its upland counterpart, the timber rattlesnake *(Crotalus h. horridus)*, occurs in some of the more remote Piedmont areas where rattlesnakes still exist. The eastern distribution of all rattlesnakes has been adversely affected by the human populace and these creatures of the wilderness have become exterminated in many areas. Even in sections of the Coastal Plain and the western mountains where rattlesnakes are still to be found, specimens are usually not abundant and the killing of one is frequently considered worthy of several lines and usually a photograph in a local newspaper.

The canebrake rattlesnake is primarily an inhabitant of lowgrounds and pocosins of the Coastal Plain where they seek shelter inside rotting logs, beneath stump piles, under the flooring of dismantled dwellings, and about abandoned sawdust piles and lumber camps. Specimens are sometimes seen crossing roads and highways through such areas, especially during the warmer months in the early morning, late afternoon, and evening.

Several writers have reported this serpent to be aggressive and more inclined to fight than flee from an intruder. We have not witnessed such arrogant behavior among the canebrake rattlesnakes which we have observed. In fact, most individuals appeared rather sluggish and defended themselves only when thoroughly molested. If given the opportunity, most specimens will crawl quickly away from their source of annoyance and many will remain quietly coiled apparently in an attempt to escape detection rather than advertise their presence by rattling or assuming a defensive posture. However, when aroused this big rattlesnake will fight for its life and under such conditions it is a most dangerous adversary, quite capable of inflicting a very severe bite which may occasionally prove fatal.

Breeding occurs in the spring and the young are born alive, usually beneath some type of shelter, in late August or early September. At birth these juveniles measure about 12 inches and may number up to 20 or more per brood.

Small mammals make up the principle food of the canebrake rattlesnake and such prey normally is quickly killed after being bitten.

Like all of our venomous snakes, the canebrake strikes man only in defense of its life, and persons afield in areas known to be inhabited by this and other dangerous forms need only watch where they step and avoid putting the hands and fingers (and other parts of the body) into crevices and similar places without first making certain that it is safe to do so. *Small children should be taught to leave all snakes strictly alone* until they are old enough to distinguish between the harmless and venomous species. If such measures are practiced the chances of being bitten become almost negligible even in those areas where rattlesnakes and other venomous species are known to occur. ⬍⬍

Hopefully, North Carolina will one day have a zoo, or better, a zoological garden worthy of the name and of the state in which it can be created. This will cost money—millions—but few would disagree that the educational and recreational value of such an institution would be priceless.

Zoos are no longer simply a row or two of cages with unhappy animals in them. In zoological gardens wild creatures live in the closest possible approach to their natural environment in airy enclosures surrounded by fences or water moats.

We live in an age when many wild creatures are approaching extinction. But how many youngsters in school today get a chance to see our native wildlife species, even some that are so plentiful hunting seasons are allowed on them?

We recommend you read the following letter. When a group of young men half way around the world are willing to raise money to send North Carolina four beautiful African impala, it is time for us to get on the ball and provide a place to keep them!

Dear Sir:

I wish to introduce myself as the President of Junior Chamber—Eshowe (Eshowe is a small town of about 3000 white inhabitants in Zululand, South Africa). During September of this year we had the pleasure of hearing an address given to us by Mr. Ian Player, Chief Conservator for Zululand, as part of our Jaycee Week. I took the opportunity of speaking to him about a project we have in mind, namely the transferring of animals to a town in the United States, either as a donation to an already established Zoo or to a town that wishes to start a Zoo.

According to Mr. Player, your town is keen to get a Zoo started and he has gained the impression that one of your citizens, Mr. William Parker would be prepared to partially finance its establishment. According to Mr. Player, Mr. Parker has toured our game reserves as a guest of a Warden van Niekerk and that this has strengthened the bonds between South Africa and the town of Raleigh.

Mr. Player has indicated to us that he has available for transfer, four Impala, and we of Junior Chamber Eshowe are prepared to raise the money necessary for the purchase and transportation of these animals to your town to enable you to establish a zoo.

We feel that a project of this nature can only strengthen the ties and improve international relations between our respective countries and I would therefore ask you to consider the implementation of this project.

I realise that this project requires a lot of organization between us and to facilitate your work I have written to the Jaycees of Raleigh advising them of our proposed project.

I feel sure that between us this project can be successfully concluded and therefore ask you firstly to contact the Jaycees of Raleigh with a view to establishing a zoo site in your town and secondly to advise me of your opinions as to the implementation of this project. I can assure you that we of Eshowe Junior Chamber are most eager to carry out this project, especially in view of your town's interest in South African affairs. We are assured of Mr. Player's full support and co-operation.

I look forward to your early reply.

Yours truly,
G. W. BLACK—PRESIDENT
ESHOWE, ZULULAND
SOUTH AFRICA

### Films Available

Movies make fine programs for many clubs and other groups but sources are often hard to pin down. This service may help.

Sportsmen wanting to show films at meetings will find a new brochure — "Films for Sportsmen" — a handy source. The brochure lists dozens of movies on hunting, shooting and conservation.

The listing carries running times and the addresses from which to order the films, most of which are free. There is no charge for the brochure. Copies are available by writing: National Shooting Sports Foundation, Inc., 1075 Post Road, Riverside, Conn. 06878.

### Catfish Bait

Dear Mr. Louder:

For more years than I like to think about I have been a subscriber and reader of "Wildlife" and enjoy the stories very much.

Your story "The Channel Catfish" in the November publication is most interesting and I am sure a lot of fishermen will, as I have, enjoy reading it.

I note you state Chicken Blood is about the best fish getter, as a bait. I would like to know more about this bait and where I can get it? I will thank you very much if you will furnish me full information along with any additional suggestions you may have to offer.

Sincerely,
T. W. Aldred
Charlotte

Dear Mr. Aldred:

Chicken blood bait is relatively easy to make. Simply collect blood in a flat pan from any produce company killing chickens, let it coagulate, pour off the juices that form, and cut the remaining coagulum into strips. These strips can then be threaded on small treble hooks. The baited hook should be lowered into the water slowly so that the blood does not dissolve rapidly. Chicken blood attracts the fish as it dissolves slowly from the hook. Any movement of the bait will obscure the trail and may wash it from the hook. I might add that the fresher the bait, the better the results.

Very truly yours,
Darrell E. Louder
Supervisor of Fisheries
Division of Inland Fisheries

## KNOW YOUR PROTECTOR

**Thadieous H. Robbins**

Thadieous H. Robbins, Wildlife Patrolman stationed at Fairfield in District One, was born on August 29, 1938 in Wilson County. He is the son of Mr. and Mrs. Thadie Robbins of Route 2, Elm City, North Carolina. He graduated from Elm City High School in 1957, then served three years with the U. S. Army as a Military Policeman.

Mr. Robbins completed the Basic Recruit School for Wildlife Protectors at the Institute of Government at Chapel Hill in June of 1960, and in September of 1961 was assigned to District Seven as Wildlife Protector Trainee. He was promoted to Wildlife Protector in January of 1962, and transferred to District Two in March of 1962. He was promoted to Wildlife Patrolman in September of 1966. He has completed five in-service schools.

Mr. Robbins is a member of the Southeastern Association of Game and Fish Commissioners, the State Employees Association, N. C. Wildlife Law Enforcement Officers Association, Charter member and secretary of the Mattamuskeet Jaycees, Scout Master of Boy Scout Troop 107, and Master Mason, member of Fairfield Lodge No. 520 A.F. and A.M. He is married to the former Jacqueline Rae Wilkinson of Belhaven, North Carolina. They have one son T. H. Robbins, Jr.

## DIVISION ENFORCEMENT RECORD FOR NOV., 1967

| | |
|---|---|
| **HUNTING & FISHING** | |
| Persons checked | 37,155 |
| Total prosecutions | 737 |
| Total convictions | 710 |
| Total cases not guilty | 13 |
| Total cases nol prossed | 14 |
| Total cases dismissed | 0 |
| Total fines collected | $8,235.70 |
| Total costs collected | $6,987.20 |
| **BOATING** | |
| Persons checked | 663 |
| Total prosecutions | 39 |
| Total convictions | 38 |
| Total cases not guilty | 1 |
| Total cases nol prossed | 0 |
| Total cases dismissed | 0 |
| Total fines collected | $106.96 |
| Total costs collected | $401.35 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

Prevention of firearm accidents in the home and while hunting is given special attention in newly revised scouting marksmanship merit badge training. Requirements were so broadened that the merit badge has been given a new title—Rifle and Shotgun Shooting. Seven hundred scouts from eastern Carolina went through related training this past fall at a Camp Reeves Camporee in Carthage, North Carolina. The extensive firearms safety course was possible because of assistance from the Special Warfare Center at Fort Bragg.

U. S. ARMY PHOTO

## BOY WORTH

• continued from page 7

ville boys." Another Asheville citizen volunteered the information that the boys had cleaned up three decrepit cemeteries on their own time.

No one would deny the Job Corps costs money. Our professionals have failed with some of the boys. They have succeeded with more. In the main, the boys look up to the rangers and they like the woods. It boils down to the question—what is a boy worth? Most members of The American Forestry Association would say he is worth a lot and deserves his chance. On a dollar and cents basis it probably costs society less to train boys in a Job Corps camp than risk having them run wild in their ghettos. While Job Corps camps cost plenty, crime costs even more. Then too, there's the other side of it. Week after week in our church pews we are all told that Christians should help the unfortunate and particularly unfortunate negroes. We are told we should tear down the Iron Curtains that separate our suburbs and the cities proper and really practice what we profess to believe. From the standpoint of society,

After 41 years of service to the State of North Carolina, Miss Lunette Barber has retired.

"That doesn't mean I'm going to quit," she pointed out. "People who retire and quit at the same time don't live very long, and I plan to be around for a while!"

Asked about future plans, "Miss Lunette," as she is affectionately known to thousands, said. "I like to travel, but I have never had much time to do so. Now I plan to do a lot of traveling." During almost 20 years of service with the Wildlife Resources Commission she traveled nearly a million miles, mostly within the state.

Thousands of teachers, and hundreds of thousands of Tar Heel youngsters will remember the day "Miss Lunette" came to their classroom and told them about wildlife—and wildlife conservation.

Armed with a mouse-gnawed deer antler, pelts of fur-bearing mammals, and portraits of lesser known and even less understood species of wildlife, she made a colorful presentation few people will ever forget.

Miss Barber appeared before hundreds of women's clubs, garden clubs, civic and sportsmen's clubs where her remarks were as colorful as her personality and sparkling brown eyes.

She attended Eastern Carolina Teacher's College, Hardbargers Business School, and took several correspondence courses from North Carolina State. She taught school in Johnston County, of which she is a native, and for six years at the N. C. State School For The Blind. Since August, 1949, she has been employed as a Wildlife Education Representative.

Her philosophy of life is simple: Love your work, love people, and love God. She sums it up another way in this couplet:

"Love many, trust few
Always paddle your own canoe"

Asked about the most difficult job she ever faced, her reply was quick. "Teaching a one-armed blind boy how to type."

Reprinted from Raleigh *News & Observer*
December 31, 1967

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the Jop Corps approach and similar approaches are probably the most economical approaches viewed on the long term. We know it is the *right* approach as viewed from the pulpit and in terms of "Am I My Brother's Keeper?"

All Americans, of course, reserve the right to criticize. They reserve the right to ask questions that deserve sober answers. Most Americans also like to see youth programs succeed and in their hearts they know the Job Corps is one of the best things the Administration has done. The Job Corps *is* succeeding, on a limited basis—perhaps imperfectly—but it *is* succeeding. The placements and the jobs held tell the story. Meanwhile the public owes the forest rangers, the instructors, the nearby citizens and even the forests a vote of thanks for the task they are carrying out. It is not an easy task at best. And no camp, no matter how good, can do the work of a well-adjusted home. But for these Job Corps boys, who have never known the home your children know, this is the next best thing. (J. B. C.)

*Reprinted with permission from American Forest Magazine, July 1967 issue.

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PHOTO BY LUTHER PARTIN

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# What's For Lunch ?

Cold feet don't seem to be a problem for this gray squirrel as he pauses between bites of hickory nut. Most wildlife species fare pretty well during the snowy days when food is available.

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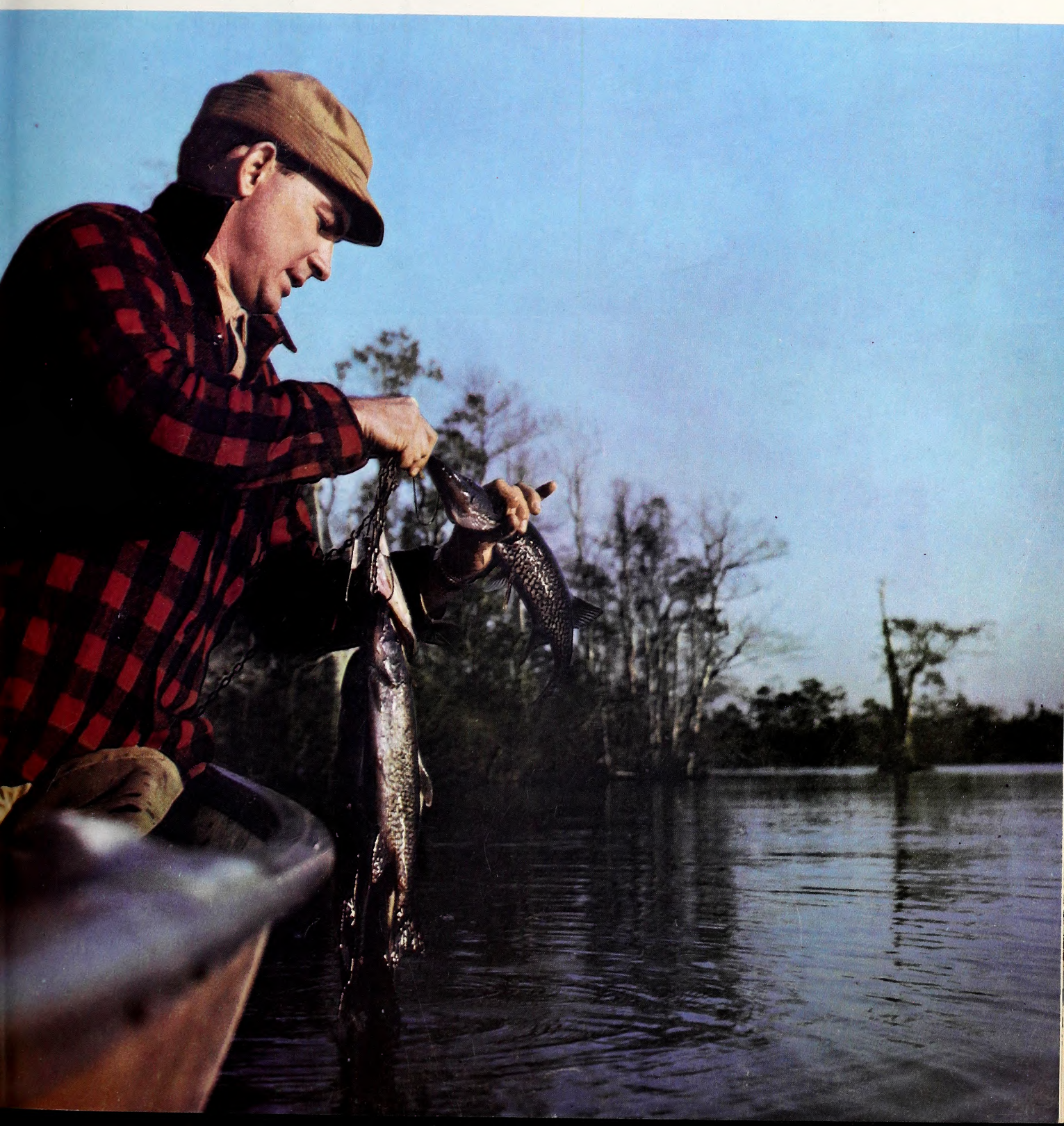
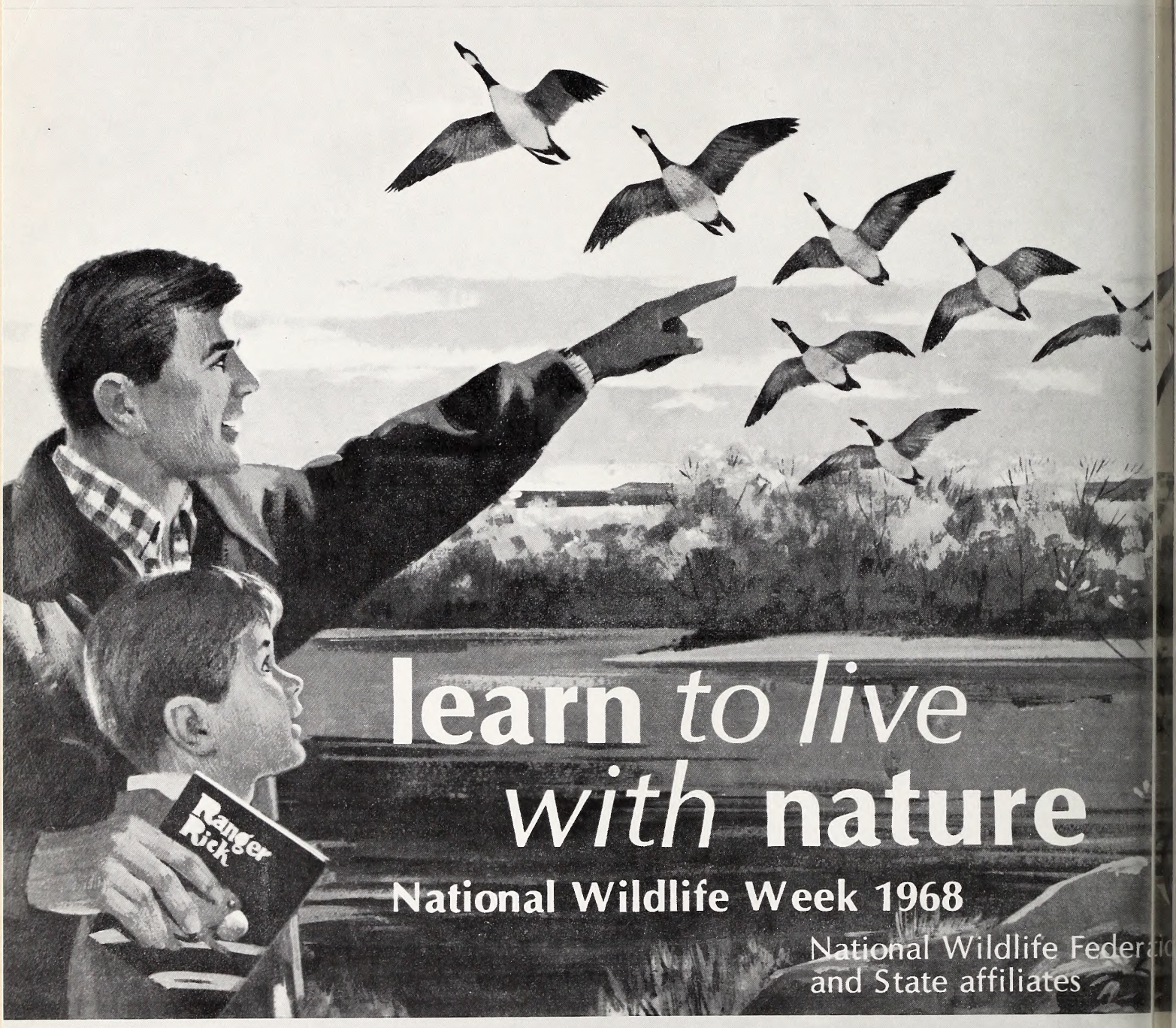
# Wildlife IN NORTH CAROLINA

MARCH 1968






National Wildlife Week March 17-23

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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VOL. XXXII, NO. 3 MARCH, 1968

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EDITORIAL STAFF

ROD AMUNDSON _ _ _ _ _ _ _ _ EDITOR
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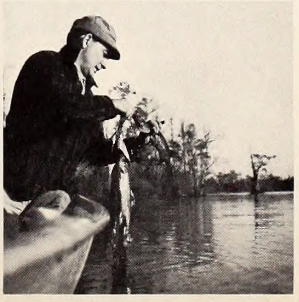


It looks cold, and it is. But a nice pickerel to add to those already on the string makes the temperature seem a few degrees warmer. March angling can be rough but rewarding and one place to start is with the "jack" of eastern North Carolina. The chain pickerel spawns very early and provides some pretty good fishing before the bass and bluegills really get going. Photo by F. Eugene Hester.

# Waves of Development Threaten The Tidewater

by Chester Davis
Reprinted from
Winston-Salem Journal-Sentinel

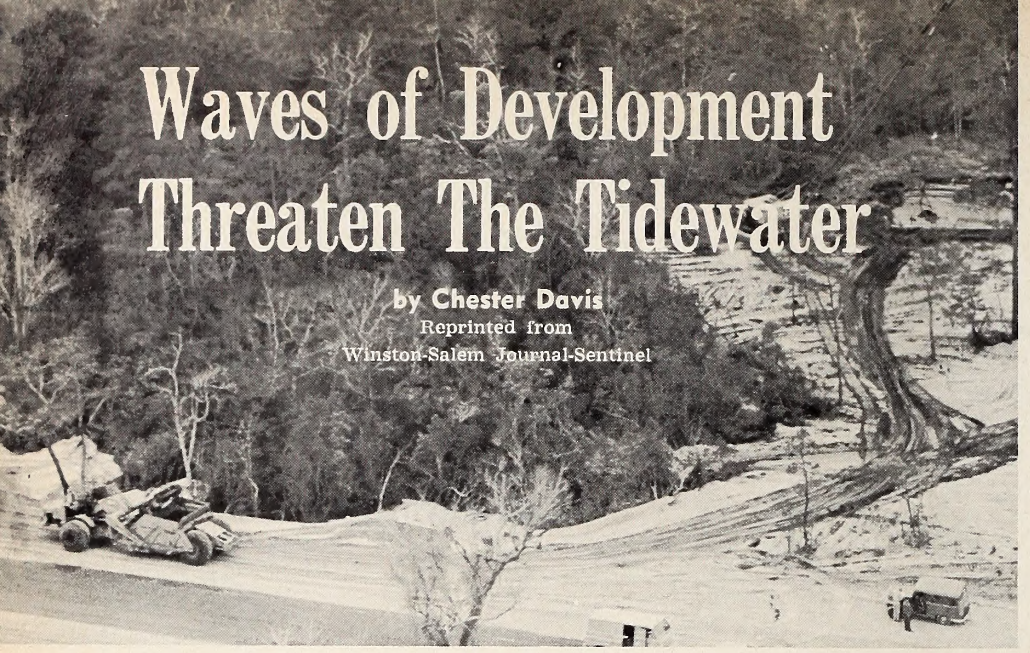


PHOTO BY TOM JACKSON

"THE history of our estuaries has been one of steady and accelerating destruction. Today the condition of our estuaries is shocking, their future is bleak, and the need for action is urgent."

That statement, made last summer by an assistant secretary of the Department of Interior, Frank Di Luzio, was not directed at an audience of North Carolinians. But it should have been. For of all the states, only two, Alaska and Louisiana, have more extensive estuarine areas than North Carolina. And perhaps no state is destroying the productivity of its estuaries as rapidly as this one.

Studies made in recent months indicate that in the past 15 years almost one-third of North Carolina's prime coastal marshlands have been so abused by man that they no longer can fully serve their important natural functions.

The truly disturbing fact is that these marshlands are a part of an estuarine environment which probably is the most valuable—and certainly the most vulnerable—of all the varied types of natural environment to be found in this richly endowed state.

This is tidewater North Carolina, a complex environment made up of salt, brackish and fresh water, and regularly flooded salt water marshes, irregularly flooded salt water marshes, and high, infrequently flooded fresh water marshes.

### Two Million Acres

This estuarine region covers more than two million acres, most of it included in the great island sounds: Currituck, Albemarle, Roanoke, Croatan, Pamlico, Core and Bogue. Then there is the string of small sounds to the south of Carteret County—Stump, Middle, Masonboro, Topsail, and others—and the mouths of the rivers which empty into the sounds or, in the case of the Cape Fear, into the ocean itself. Equally important are the fringes of marsh that edge the sounds, the river mouths, and the lee side of the Outer Banks.

There was a time, and not so long ago either, when this watery area—most particularly its reedy marshes—was considered to be of little economic importance. We know better now. As Dr. Eugene P. Odum, an authority on the comparative productivity of various environments, recently said, "The estuaries are the most naturally fertile areas on earth."

Based on research done in Georgia, Odum concluded that the estuarine marshes there—and they are very like those found in this state—produce approximately 10 tons of dry organic material per acre a year. (Not all of it, of course, usable by man.) This is almost twice the productivity of the best farm land, seven times the productivity of ocean waters along the continental shelf, and 20 times the productivity of the open oceans.

### Important to Economy

This productivity explains the immense importance the estuaries have to the economy of this state. That value can be documented in many ways.

The estuaries are the source of most of our shellfish—oysters, clams, crabs and bay scallops, for example. The estuarine waters and their creek-laced marshes are the residence or the nursery for most of the important food and sport fish found on this coast. In 1965 commercial fishermen in North Carolina sold 226 million pounds of fishery products. Of that total, 97 per cent by weight was made up of species which were, one way and another, dependent on the estuarine environment for their survival.

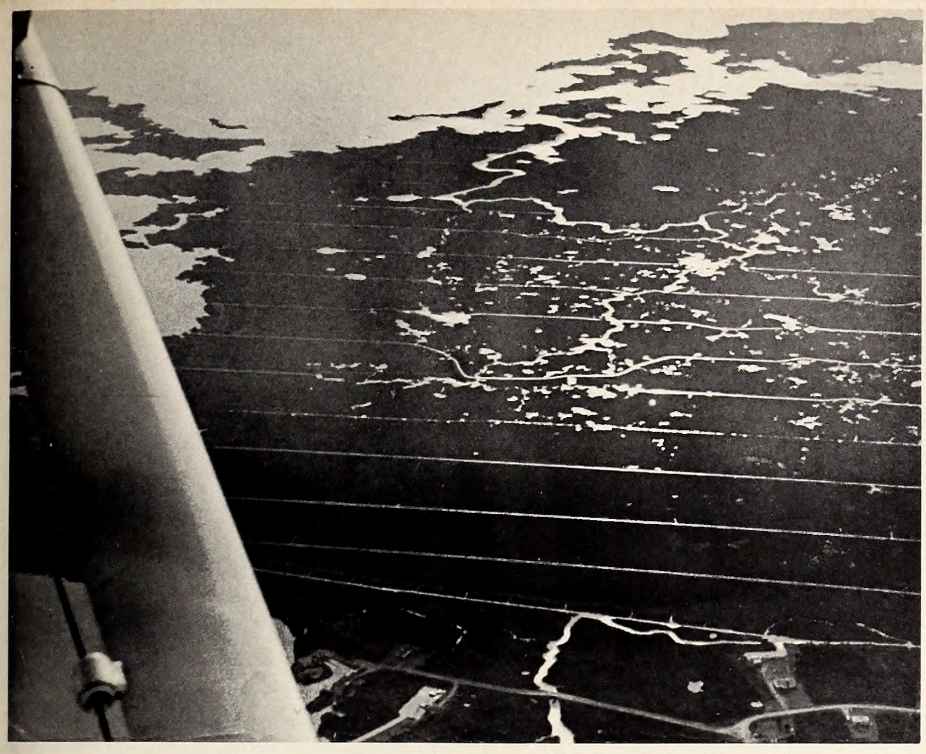
The state's 5,000 or so commercial fishermen are, therefore, utterly dependent on the continued productivity of the estuaries. In 1965 that environment produced a catch valued at dockside at $9.5 million. Processed and sold to the ultimate consumer, the 1965 catch is estimated to have been worth $66 million.

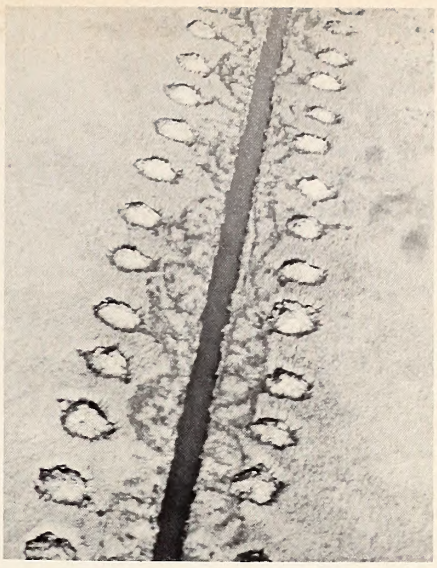
Then there are the 400,000 or so Carolina sports fishermen who, by the most conservative estimates, spent $32 million last year to catch species whose abundance is determined by the productivity of the estuaries.

Most of the waterfowl which come to this state each winter also are dependent on the continued health of the estuarine waters and marshlands. It is estimated that in Currituck County alone hunters spent a minimum of $500,000 last year for the opportunity to shoot at a duck or a goose.

The clapper rail, a resident of the salt water marshes, contributes another, albeit much smaller, source of income for guides in certain of our coastal counties.

And trapping—raccoon, mink, otter and muskrat—is still another source of coastal income ($422,773 worth in 1965-66) that is dependent on the continued





PHOTOS BY TOM JACKSON

**Like the tracks of some stiff-legged monster, a drainage ditch and its blobs of excavated earth slice the marsh. Left, miles of these ditches lace a marsh, draining its life.**

existence of the estuarine marshes.

The estuaries are a source of mineral wealth that ranges in kind from oil in Louisiana to the enormous phosphate deposits in North Carolina. In this state and elsewhere they are a source of shell, sand and gravel.

And we use these coastal waters for navigation. The Inland Waterway and both our state ports are located in estuarial waters. We use them, too, for recreational purposes as varied as boating and bird watching.

That, then, is the value of this natural resource which we are destroying.

The pace of this destruction can be documented.

In 1952 the state of North Carolina made an inventory of its estuarine wetlands. In 1967 biologists of the Wildlife Resources Commission took that 1952 study—one that covered 13 coastal counties—and used it as a reference point to determine what had occurred in the intervening 15 years.

The biologists concluded that in that brief period man had either substantially altered or destroyed 28.5 per cent—some 45,292 acres — of the state's remaining salt water marshlands.

Estuarine waters and marsh are productive and lend themselves to many uses because they are so diverse and complex. Here you have the wash of the tides and the blending of fresh, brackish and salt waters. The estuaries are the place where the inland richness and filth that flow down the rivers are trapped. They are the place, also, where there is a great variety of water depths and temperatures.

These are the characteristics which make the estuaries productive and valuable to man. By the same token, this complexity of characteristics also makes the estuaries peculiarly vulnerable to destructon and change by man's activities.

A part of this destruction and alteration results from pollution, from the municipal and industrial wastes that pour down our rivers to the sounds, from the mounting levels of poison the rivers bring down in the form of herbicides and pesticides, and from the smothering silt the rivers unload each year into the sounds.

Ditching and draining the coastal marshes, most of it done in the name of mosquito control, is another major source of destruction. Two North Carolina counties have ditched every acre of marshland they possess. Last year the board of commissioners of Dare County invested $29,000 in a drag line and announced that it intended to ditch the county's 15,500 acres of salt water marsh.

Such ditching alters, sometimes beyond man's capacity to restore, the character of these marshes.

Another source of destruction is the dredging, filling and bulkheading of marshland to create areas for new housing developments. This is occurring in North Carolina at an unprecedented pace.

James R. Hinkley, a member of the planning division of the state Department of Conservation and Development, says, "I don't know the total number of subdivisions now under development on the estuaries of the state. But in the area served by my office (Onslow County north to the Virginia line) there are at least a dozen."

And these are large developments. The Collington Harbor development on Roanoke Sound has at least 10 miles of waterfront, much of it created by filling and bulkheading on areas that were once natural marsh.

Some of these developments, like the Figure Eight Island project near Wrightsville Beach, are well planned. But even that high-quality project has destroyed much acreage of salt

water marsh in order to create additional building sites.

Most of our coastal developments are well planned only in the sense that the developers have been certain to make the maximum number of lots available.

Where there is no provision for water and sewer service—and that is more often the case than not—the State Board of Health recommends lots of no less than 20,000 square feet. Hinkley says that there is one development in his area which is offering 1,135 lots with frontages of 25 to 50 feet. These lots contain from 3,750 to 8,750 square feet.

Such developments pose serious problems for our estuaries. Hinkley says, "Those 1,135 lots very well could house 3,000 or more people with none of them served by public water or sewer lines. Can you imagine the pollution problem that will result?"

Still another major source of estuarine destruction is dredging —dredging to fill land for real estate developments, dredging to maintain navigation channels, and dredging for shell, sand and gravel. Dredging is damaging in several ways. It disturbs the bottom, clouds the water with silt that shuts off the sun from plant life and often smothers plant life. In dredging there always is the question of disposing of the spoils.

Then there is the cumulative effect of varied small encroachments on the estuaries. A section of marsh becomes a dumping ground for garbage and old automobiles. Life in one estuarine area is destroyed by thermal (heat) pollution. Twenty-five acres of fresh water marsh near Wilmington are filled to provide a final berth for the USS North Carolina.

These small, nibbling uses, unimportant in themselves, have a total impact on the estuarine environment that is impressive.

In North Carolina the destruction of this environment by all of these uses has reached the point where it is exacting a heavy toll. For example:

—Dr. David Adams, director of the Division of Commercial and Sport Fisheries, says that this state's fisheries, commercial and sport, are deteriorating because of the destruction of the estuaries. This deterioration will continue, and probably will accelerate, unless the destruction is checked, he says.

—Thousands of acres of important clam-and-oyster-producing areas have either been destroyed by pollution and siltation or have been closed to the public because of health hazards resulting from pollution.

—Few unbroken expanses of coastal marsh remain in the state. The very attraction—unspoiled coastal scenery—that is the basis of the land developers' success is itself being destroyed.

Local, state and federal agencies are interested in the preservation of the estuaries.

The Department of Interior opposes the proposed Pamlico deep water channel (Morehead City to the phosphate-producing area in Beaufort County) because of the probable damage it will do to Pamlico Sound and the Pungo River. Several years ago the Wildlife Resources Commission fought a plan to dredge for dead oyster shells in Albemarle and Currituck Sounds. The Corps of Army Engineers regularly seeks to block any uses of the estuaries which might interfere with navigation.

A number of coastal counties have adopted subdivision controls and enacted zoning laws in an effort to preserve the estuaries.

But these uncoordinated efforts have not been effective.

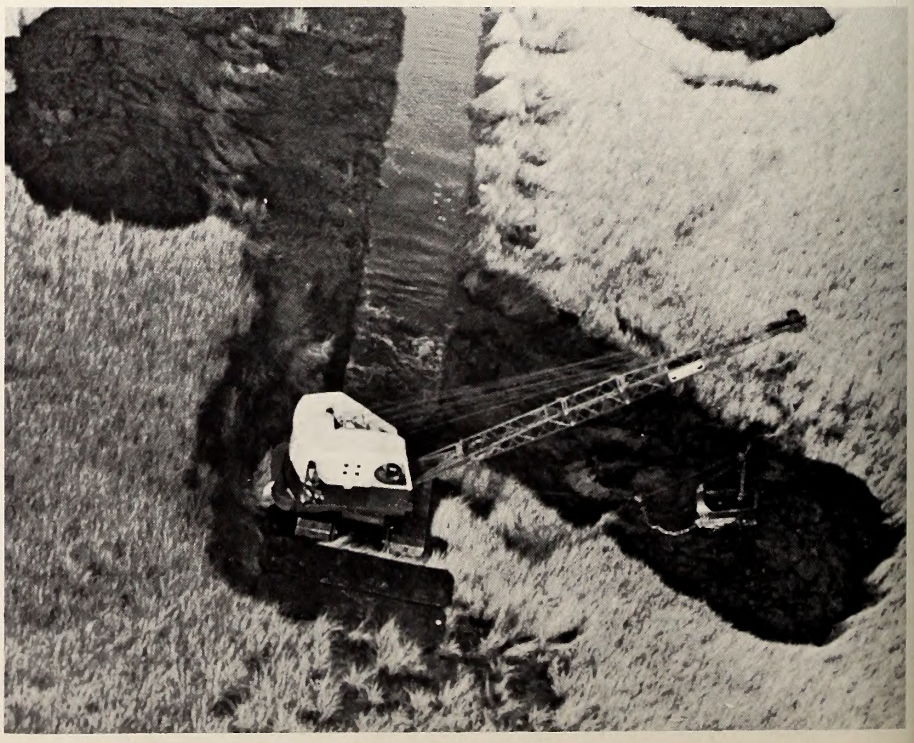
One reason is lack of continued, intensive enforcement. Regarding local controls, Hinkley says, "Presently—and I am sorry to report this—there is only one county on the coast that is effectively administering the layout of subdivisions and the zoning of land uses. That is Carteret County."

But the real source of the problem lies in the fact that there is no agency—local, state or federal —which is responsible for the protection of the overall estuarine environment.

"Perhaps most pathetically," Adams says, "no one is in the position to make the necessary policy decisions. No one has the necessary responsibility and authority to do so. As a result,

**The natural, useful functions of a marsh are seldom known by the developer, and often simply ignored when they are known in the mad scramble for short-term monetary gains.**

PHOTO BY TOM JACKSON



marshes, tidal creeks, flats and shallow waters are being engulfed, bit by bit, by real estate developers and dredging spoils."

Added to this is a vexing legal problem. Under the law, the state holds title to all land lying beneath navigable waters. It would seem, therefore, that the state has the power to protect these lands. The rub lies in the question, "Just what is navigable water?" Is a tidal creek that will serve a small boat at high tide, but not at low tide, navigable?

### The Unaware Public

And there are the additional problems created by instances where individuals have acquired title to estuarine areas through adverse possession. Old deeds based on landmarks that no longer exist raise equally troublesome questions of ownership.

Behind these specific problems there is the fact that the people of North Carolina are largely unaware, and certainly unconcerned. Not even the major conservation organizations in the state—the N. C. Wildlife Federaton, the League of Women Voters and the Garden Club of North Carolina—have made the preservation of the estuaries a major part of their programs. Like the governmental agencies, they have gone to bat in specific cases—the federation's fight against dredging for dead oyster shell is an example—but they have not tackled the over-all problem, and, seemingly, are not aware of its gravity.

This may be changing.

Recently Gov. Dan Moore set up a Council of Natural Resources. On it are represented all state agencies involved in the use of North Carolina's natural resources.

The council's first action was to name a study committee headed by Adams to analyze North Carolina's estuarine problem and to propose a program for meeting that problem.

### Possible Approach

While this study group has made no decisions it is known that Adams presently favors the following approach:

1. Designate one state agency as responsible for the protection of the estuaries and provide that agency with the authority to enforce its decisions. Adams says, "The issue here is not one use or the other applied to the entire system but, instead, each use in its proper place and all in proper perspective."

2. As a first step, this agency should make an inventory of the estuarine marshes and water, cataloguing them as to types, ownership, development potential and natural resource value. (An enormous task because more than two million acres of land and water are involved.)

3. Undertake an acquisition program which will bring under state ownership those marshlands of prime importance as nursery areas for food and sport fish. (As a rough estimate, Adams thinks the acquisition program would cost approximately $18 million in state and matching federal funds.)

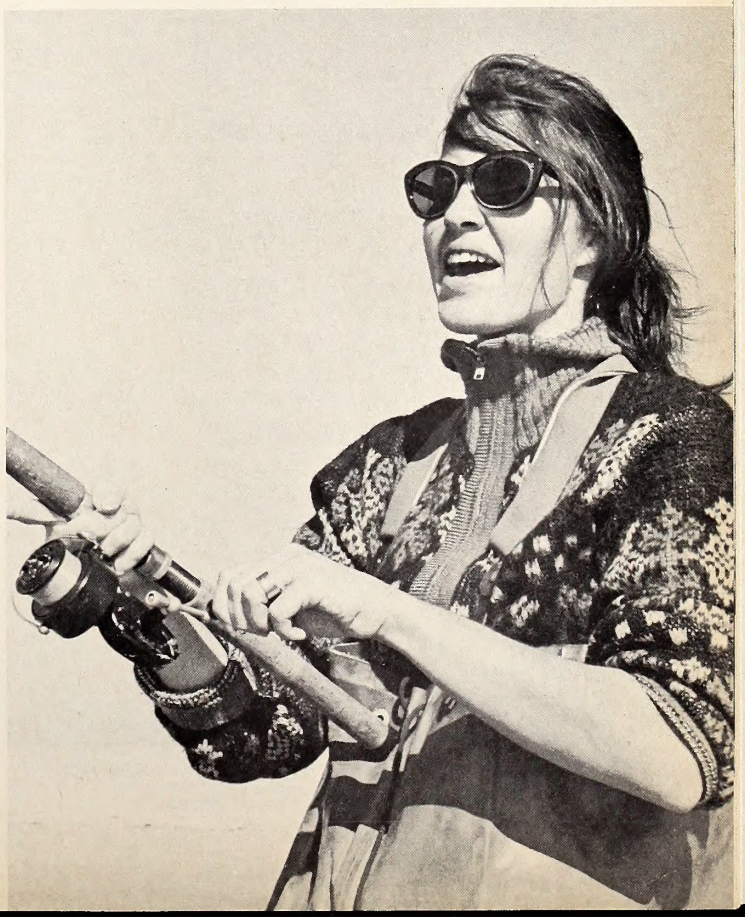
These are ambitious, costly recommendations. They reflect the seriousness with which state experts view the estuarine problem and the need to meet the problem immediately.

**To those who have never known the experience of a day on the marsh, the value of these wetlands seems remote indeed. Yet here is a resource harboring great wealth and once gone, is lost forever. Will the tide of development stop?**

PHOTO BY JACK DERMID

**Even the surf angler and charterboat fisherman benefit from the marshes. These tidal waters provide nursery areas for many salt water fishes, as well as being the food-producing sites for these fish.**

PHOTOS BY TOM JACKSON



# The Dangerous Black Bear

Recent events involving bears have prompted the following comments and reminiscences from Dr. C. H. D. Clarke, Chief of the Fish and Wildlife Branch, Ontario Department of Lands and Forests.

YEARS ago, before the last war, Dr. Clarke worked for the federal government. During this period, he spent several months in Banff National Park. The day of arrival was actually his first in Banff town, although he had previously seen parts of the park.

After dinner, he went for a walk. The nearest place to look for birds and beasts was along Whiskey Creek, just across the C.P.R. tracks. Approaching the tracks, he saw a sight that could only be seen in a place where the permanent dwellings of man and sanctuary for animals coincide. A huge old black bear was being run out of town by a shrill-voiced pack of small boys.

Those boys knew their bears. And that one didn't want to cross the tracks. The boys would give him a rush, all together, and yelling in their squeeky voices. The bear would give a few yards and then huffing and puffing, run at them. The boys retreated a little, stood their ground, and then rushed again. Slowly but surely the bear gave ground until he found himself on the cinders and then lumbered across the tracks into the woods.

"Before you can do this to a bear," suggests Dr. Clarke, "you have to have seen a lot of bears and watched a lot of charges, complete with huffs and puffs, so that you can sense an abnormal and unfamiliar move." Those Banff children grew up with bears.

In his turn, states Dr. Clarke, he has seen a lot of bears and knows that, if you do it judiciously, you can even stand off fe-

males and cubs. He once had eight bears, an old male, a sow with three cubs and a sow with two, all treed in one place. The old boy went right up. The females sounded fierce and Dr. Clarke had to be very careful until the cubs were safely treed. Then the mamas went up after them. The point is that he did block their escape and got away with it. "Don't ever try a stunt like that with a grizzly bear," cautions Dr. Clarke, "and just be careful with blacks, unless you've been around them a lot."

MOST black bears, and this includes the brown colour varieties, will run, according to Dr. Clarke who used to tell boys in camp when a bear raided at night, that if you could see that flat of his feet as he went away, he would not be back that night. If you could not, the bear would return.

You may, as he has, surprise a number of bears in the bush and their obvious dismay is, according to Dr. Clarke, almost funny. At the same time, you can be in trouble if you run smack into one. In one case, a camp cook was killed when he turned around the corner of his cabin and ran into a big bear. An Indian who jumped over a log on top of a trapped bear was also killed. Just remember to treat them with respect. They're big and they're strong.

According to Dr. Clarke, there is a relationship between the height of a person and the terror of a bear. They are not afraid of small children but if the children run, the bear may chase and kill them. It has happened. Also, a bear once killed children who were alone in a house when the bear broke in. Bears that have come to associate the presence and smell of humans with food are especially dangerous and less likely to give ground.

A conservation officer once saw a tourist at the Algonquin Park garbage dump trying to push a bear into the front seat of his car so that he could take its picture. Such an animal, though wild, is not afraid and in its resentment is likely to injure rather than kill, whereas the wild trapped bear on which the Indian jumped, swatted with all its strength because it was afraid.

The difference between the child that was killed and the urchins of Banff may well be that they were all taller than a walking bear, and there were many of them.

Long ago, Dr. Clarke was in a camp regularly visited by bears and it was discovered quite by chance that if you walked up to bears they would run away. However, if you got down on your hands and knees, they would come for you with bewildering speed. The camp crew were in a position to experiment over and over again. Don't ever try it, Dr. Clarke suggests, unless you have backers who are prepared to rush the bear and save you and who not only know what is going to happen but also how fast it will happen.

There is no doubt about it at all. A man standing up has the respect of a black bear but a prostrate man suddenly becomes something else. Whatever it is, it triggers a rush on the part of the bear that could be fatal. If you can get to your feet before he is too close, he will put on the brakes, huff and puff, stand up, get down, huff and puff some more and cuff the ground. Then he will retreat.

You can, states Dr. Clarke, take his word for all of this and he would never tell it for fear of prompting someone to try it were it not for the fact that some people apparently try it without prompting.

A man killed by a bear in Ontario was found with a camera at the ready, apparently approaching the bear for a picture. Two girls in the western U.S. were sleeping out in eiderdowns and reportedly killed by grizzlies although Dr. Clarke suggests that they could well have been black bears. A grizzly is more apt to chase a person standing up. It has no respect for a standing man and anyone charged by a grizzly with no shelter near should lie down before he gets knocked down. The latter situation was fatal to one park warden. But a park superintendent, caught in a similar situation, lay down and escaped with a few nips.

To a black bear, on the other hand, the prone amorphous object inspires the opposite of fear. You should sleep with a shelter of some kind, or, even better, a mosquito net. Best of all, use a tent. Dr. Clarke has heard the huffing and puffing of bears just six inches from his ear on the other side of the tent wall and was quite safe.

Let's face it. Black bears can be dangerous. If there is one around, stay upright and make human noises. Then they are not dangerous unless you attack them. Take the Davy Crockett attitude. Don't attack, grin 'em down—without going any closer. Always remember how strong they are and how quick they can be. ⬍

**A bear in the bedroom may seem cute, but they seldom make pets that can be trusted. Leave them in the woods.**

PHOTO BY JACK DERMID

# This Help is for The Birds!

**by Jerry Lathan**
Production Manager

STAFF PHOTOS

The Raleigh Lions Clinic for the Blind, under the leadership of its Executive Director, Russell G. Broaddus, has as one of its unique projects the construction of bird furniture. This is how it is done.

IN December of 1966, the Lions Club of Raleigh working in cooperation with the North Carolina State Commission for the Blind underwrote a non-profit corporation known as the Raleigh Lions Clinic for the Blind, Inc. This Clinic provides work evaluation and vocational training for the visually handicapped in a large building formerly used by an industrial enterprise. It began its career January 30, 1967, and 10 months after it opened, the Clinic had channeled 38 trainees to gainful employment. It now has about 55 clients having their work evaluated or in training in the workshop.

The Clinic facilities are open to visually handicapped citizens from all parts of North Carolina. Already trainees have been served from both eastern and western counties.

When clients arrive at the Clinic, they spend the first two weeks in the work evaluation unit, then they are either channeled into vocational training in the workshop area of the Clinic or they are sent to one of the many schools that are available.

The Clinic workshop should interest nature lovers and sportsmen because it manufactures bird houses, all types of bird feeders and various types of fishing lures.

The leading bird house being manufactured for sale is known as the Carolina Blue Bird House. This house designed in cooperation with the North Carolina Wildlife Resources Commission and the Carolina Bird Club features a metal shield around the entrance so that the entrance hole cannot be enlarged by squirrels or woodpeckers. The front is hinged so it may be opened for easy annual cleaning. The house should be mounted approximately eight to ten feet above the ground in the sunlight, and not closer than 30 feet to another bird house.

The Carolina Blue Bird House provides ample space, ventilation, drainage and is constructed to make a good nesting site and a happy home for blue birds. This bird house sells for $3.00.

Another bird house being manufactured by the employees of the Raleigh Lions Clinic for the Blind is the Wren House. This house has a Chateau roof, a metal bottom, is well ventilated and is designed to mount on a post or on a tree. It also retails for $3.00.

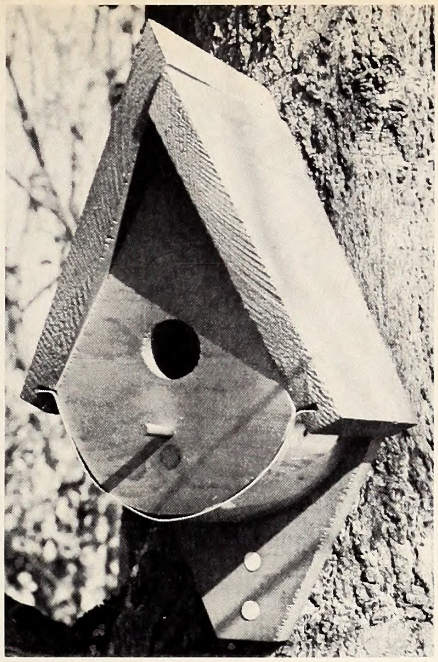
The Raleigh Lions Clinic has not overlooked the fact that bird fanciers and nature lovers always want to provide sufficient food for their feathered friends, so it has designed and is manufacturing three bird feeders. Their luxury model, the Chateau Hanging Bird Feeder, holds approximately 3½ pounds of mixed food, and is scientifically designed to attract many wild birds to the owner's yard. This redwood stained feeder is hinged so that it opens from the top and can be easily cleaned and supplied with food. It is designed to be suspended from a tree or mounted on a post approximately five to six feet above the ground and sells for $6.00.

Another interesting feature manufactured by the employees of the Raleigh Lions Clinic for the Blind is the Economy Bird Snack Bar. It is designed to give bird fanciers the most functional and versatile feeder at the lowest possible cost. It fastens on an existing post, tree, or wall with a screw through the back panel and may be filled from the top through a sliding cover. It holds approximately 2½ pounds of feed, and sells for $3.00.

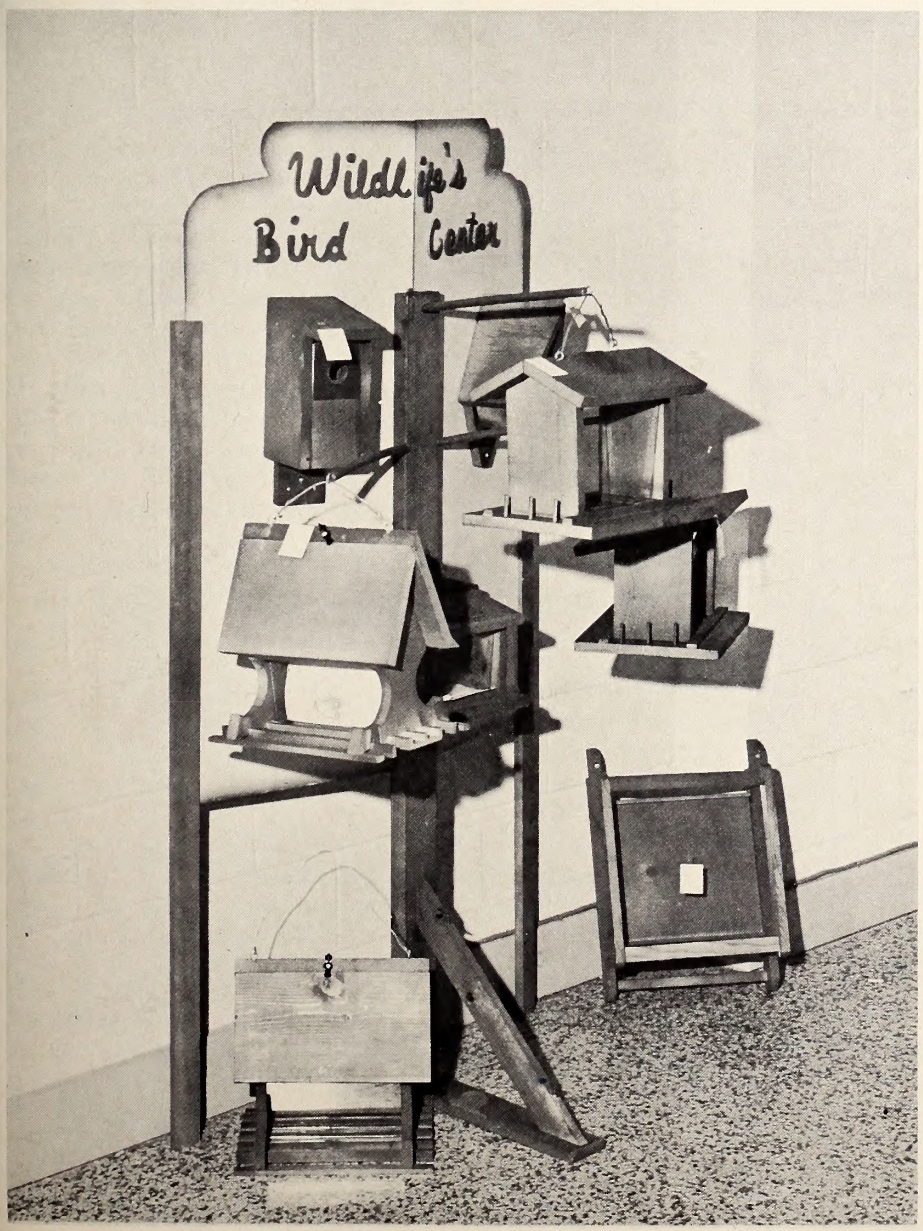
The Raleigh Lions Clinic for the Blind cooperates with various clubs and societies to provide these aids for the preservation of native wildlife. This provides a fund raising project for them as well as helps to take care of the bird population.

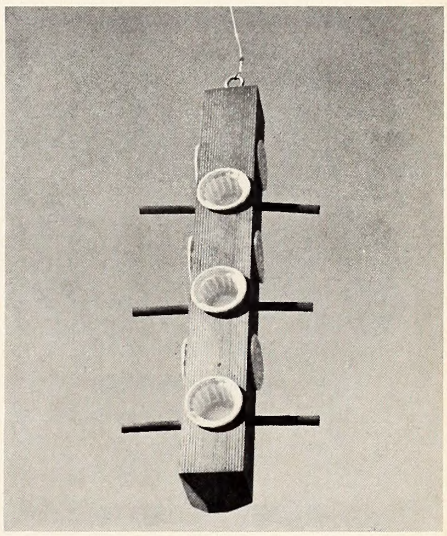
The items referred to in this article may be purchased from your favorite hardware store or from the Raleigh Lions Clinic for the Blind, 508 Glenwood Avenue, Raleigh, North Carolina 27603. ⬍⬍

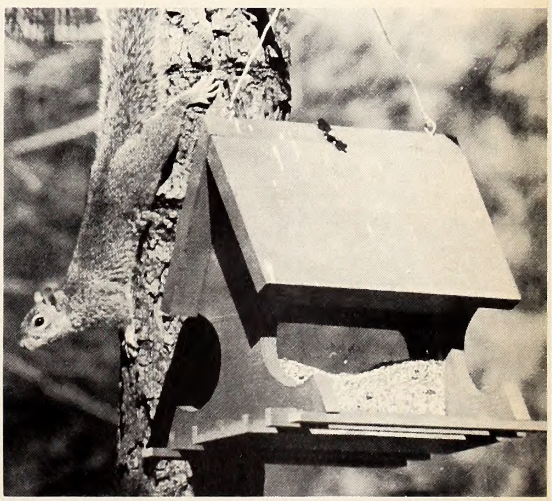
At left, the Chateau model attracts a female cardinal. This feeder is an excellent one built for years of service. Below, bird house sections are sawed for later assembling.



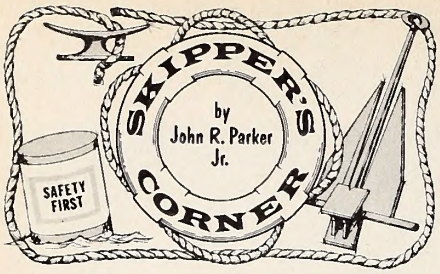
At left, the Carolina wren house is ready for occupancy. Note the metal bottom. Below, bird furniture in various stages of assembly, wooden sections of the wren house in foreground.





The paper cup feeder (top) attracts the suet eaters effectively. Filled cups are easily and firmly placed in the holes. Left, an assembly of some of the products. An uninvited guest is about to sample seed meant for the birds (above).




BY mid-January, about a third of the state's boaters have re-registered their craft. The Commission's Boat Registration Section headed by Nell Barker receives thousands of renewals in December and January. The renewal notices go out in mid-November. Miss Barker says the renewal requests slack off after January and again greatly increase during the first warm period in the spring. This is a time when a number of anxious boaters cast off and forget to renew registration and outfit their boats with all the needed safety equipment.

If that pocket-sized card aboard your boat is grey instead of green, then you had better add to the workload of the registration section prior to shoving off for the first 1968 voyage!

Finally, on registration, if you have that taken care of, check both sides of the bow of your boat for a complete and properly spaced, properly contrasted set of numbers. Don't have a day afloat interrupted by a citation for something that is so easy to correct.

Last year 59,100 North Carolinians registered their boats with the Commission. The figure resulted from the normal growth pattern of from two to three thousand annually.

In the months ahead, the registered part of the North Carolina boating fraternity will surely go beyond 60,000. Certainly this is no small group, and keep in mind these are the boats propelled by more than ten horsepower. According to statistics furnished by the Boating Industry Association, there were 103,000 motors in use in this state in 1967. Most of these are on registered boats (the 60,000); the remainder are mostly ten or under, and on smaller craft, or are separate units purchased for use on rental boats, etc.

How does the Old North State compare? Well, BIA says that New York has 608,000 units in use while out west in Wyoming there were only 9,000 outboard motors to churn the waters of that state. In between these two extremes, we find the bordering states of Virginia credited with 11,000, South Carolina with 76,000 and Tennessee with 127,000 motors in use. Keep in mind these are estimates and are not boat registration figures.

But thinking of registration, the U. S. Coast Guard figures that North Carolina has 1.6% of all the registered boats in the nation. Someone figured out that North Carolina is fourth in the nation with water acreage; so, if you think that your favorite weekend boating area is becoming crowded, it can't be. Why? Well, look at the figures, the state's boating area is fourth largest with only two percent of the registered boats.

Of course we are jesting. Some areas are becoming crowded, especially on weekends and holidays. Much of our fine water acreage includes such vast areas as Pamlico Sound, hardly a place for your 15-footer. And with 40 percent of the outboard boats purchased in the nation last year being in that class, from 14' 7" to 16' 6", plus another 20 percent being under 14' 7" in length that vast area is no place for 60 percent of so of our outboards.

## Safety Program

While some areas are actually overcrowded, others are not used at all by the recreational boater. The more people afloat in general calls for more emphasis on boating safety. And that is what the Wildlife Resources Commission intends of its new boating safety program financed, in part, by marine fuel tax money. You will recall that the 1967 Legislature passed, with your help, Senate Bill 601 *(Wildlife In North Carolina,* September, 1967). While all the details have not been worked out as yet, look to the near future for increased courtesy inspections at dockside and boating safety demonstrations.

This Corner has often recommended the courses offered by the U.S. Power Squadron and the U.S. Coast Guard Auxiliary. To substantiate our recommendation, Division of Protection Chief, Bob Hazel informs me that a number of protectors enrolled in the 12 lesson, Power Squadron course this past winter. I, too, have taken this course and it's well worth two hours per week and more.

## Access Booklet

A few lines up we were rattling on about certain vast water areas seldom visited by recreational boaters. Many smaller areas are low on boat traffic due to lack of access. There are hundreds of boating access areas and marinas in North Carolina. Most of these are privately owned and are for public use. The Wildlife Resources Commission now has 86 public access areas, the newest of which is the Cannon Ferry area, 15 miles upstream from Edenton on the Chowan River.

Last year we offered a listing of access areas in the state, by county. There are 544 areas listed, but we may have inadvertently omitted a number of privately owned areas. When the booklet is revised any such omissions will be corrected, that is, if we can find out about them.

The booklet is still available to you, free. Write, Access Booklet, Box 2919, Raleigh, North Carolina 27602.

## Boating Accidents

At this writing, there is still work to be done in analyzing the 1967 boating accidents, double checking totals and all that. However, it appears that the total number of fatalities will be slightly lower than for 1966 which was lower than the 1965 total. More of that later.

## Safety Tips

The tilt lock on your outboard is intended to keep the motor from "kicking up" when it is shifted into reverse. It will release, according to the manufacturer, upon striking a solid object and should only be in "release"

• **continued on page 27**

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### "Learn To Live With Nature" — Theme Of National Wildlife Week

The entire nation will observe the week of March 17-23 as National Wildlife Week. David Coxe, 2612 Glenwood Avenue, Raleigh 27608, will serve as state chairman and coordinate program and publicity activities among affiliated wildlife clubs of the N. C. Wildlife Federation. The theme "Learning to Live With Nature" implies more than getting out in nature and "roughing it". It implies manipulating our total environment to the end that mankind and the resources upon which it depends will endure forever.

### Are You A Five Percenter?

Five percent (one in twenty) of Tarheels who bought hunting licenses during the past hunting season will be asked to report where they went hunting, how many trips they made and how much, if any, game they bagged. This is part of another mail survey being made by the Wildlife Resources Commission to determine the amount of game bagged during the past season. Questionnaires to hunters selected at random will be accompanied by an addressed, stamped envelope for return to the Commission. All persons receiving these questionnaires are urged to complete and return them. Negative reports, i.e., no hunting trips made or game killed, are as important as those indicating successful hunting trips. Results of the survey will be published in a future issue of this magazine.

### Mountain Trout Stocking Underway

State fish hatchery trucks are in the process of putting the first of some 450,000 mountain trout in designated trout fishing waters. An equal number is expected to be available from federal hatcheries. The fish range from fingerlings to yearlings, and stocking will continue after the season opens April 6. The Bureau of Sport Fisheries and Wildlife and the Wildlife Resources Commission cooperate in the tremendous task of transporting hundreds of thousands of trout over mountain back-roads to remote trout waters.

# Hunting: A Form of Recreation

**by Clifford Bampton**
Supv. Western Wildlife Management Areas

PHOTO BY TOM JACKSON

WEBSTER defines recreation as "a recreating; refreshment of strength and spirits after toil; diversion or a mode of diversion; play."

One of the more popular forms of outdoor recreation is hunting.

The hunting opportunities that exist within the great State of North Carolina are numerous. North Carolina Game Lands provide an excellent source of hunting opportunity. However, hunting opportunities are also present on other federal and private lands. There are 18 wildlife management areas scattered throughout the state. Six of these are known as the Western Wildlife Managements Areas. This article will discuss hunting opportunities in these six areas.

Management areas differ in two respects from general public hunting areas. First, a hunter must purchase a permit and adhere to special regulations; and second, by special protection from poaching and stray dogs the hunting area is greatly improved.

In most cases the hunts are on a daily check-in and out-basis. Exceptions to this are bear and bear-boar hunts, wilderness hunts where application in advance is required, and hunting on remote sections of Santeetlah where hunters may purchase permits for two or more consecutive days of hunting provided they check out on the last day of their hunt. Hunters are required to camp at designated locations on these hunts.

## Santeetlah Wildlife Management Area

Our westernmost wildlife management area is Santeetlah, and comprises over 37,880 acres of land which is owned by the United States Forest Service. It is located west of Fontana Lake in Graham County. This relatively remote area consists of rugged mountain terrain and is noted for its European wild boar hunts. There are two types of hunts by which boar may be taken: party hunts where dogs are used, and still hunts where dogs are not used. Bear may be taken during either of these hunts and is a highly favored game animal in this area. Small game hunting for squirrel, grouse, raccoon, and opossum is also provided on this area. The original native wild turkey population has increased and a spring gobbler season was initiated in 1964. Limited camping facilities are available along Big Santeetlah Creek near the checking station and in the remote Slick Rock section.

## Fires Creek Wildlife Management Area

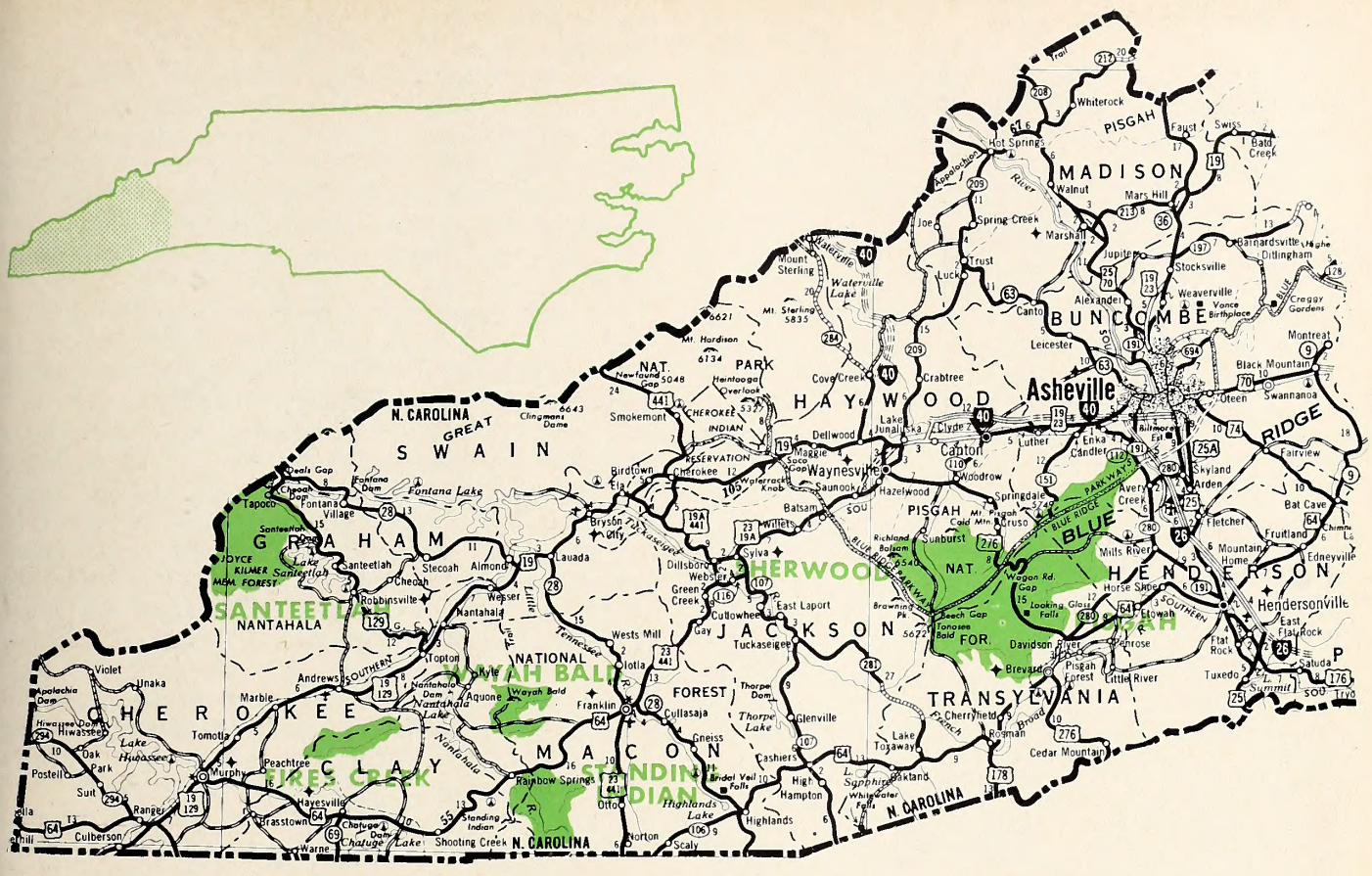
This is an area that is noted for its rugged terrain which very quickly separates the "men from the boys." It is owned by the United States Forest Service, and occupies 13,720 acres in Clay County. This area supports a good deer population and hunter success is excellent. It is a favorite spot for grouse hunters, not to mention the squirrel, raccoon, and opossum hunters. There are limited camping facilities near the check station.

## Wayah Wildlife Management Area

Wayah is one of the older wildlife management areas covering 11,284 acres of United States Forest Service land in the northern part of Macon County. The mountains are steep, but the tops are fairly flat, broad and deep-soiled to provide ideal locations for wildlife plantings. Deer is the big game animal that attracts most sportsmen to this area. However, the original stock of wild turkeys has increased sufficiently to warrant a spring gobbler season. Usually a good population of squirrel, grouse, and some raccoon are present. Camping facilities are available on the western edge of the area.

## Standing Indian Wildlife Management Area

The Standing Indian area contains approximately




# Western Wildlife Management Areas

22,822 acres. This area is in Macon County and is also on land belonging to the United States Forest Service. Standing Indian contains several large river bottoms, but also has rugged mountain terrain. Archery hunts are scheduled annually and are enjoyed by many archery enthusiasts. Squirrel, raccoon, and opossum are present; however, deer and grouse constitute the major attractions. As on Santeetlah and Wayah, the original native wild turkey population has increased enough to provide hunts during the spring. An excellent campground is located near the check station.

## Sherwood Wildlife Management Area

Sherwood occupies approximately 31,000 acres of Forest Service land in the southeast corner of Haywood County. It joins Pisgah along the Buncombe-Henderson County lines. The mountain tops are high, flat and have open ridges. They support dense stands of spruce and balsam, but provide suitable locations for wildlife plantings. A dense growth of young trees and shrubby vegetation, the result of a wild fire, provides an excellent habitat for deer, grouse, and rabbit. Hunting of black bear by parties and with dogs is a favorite sport on this area. Prime deer, grouse and rabbit hunting is also provided. In addition, there is generally a good population of squirrels, raccoon, and opossum for those who are interested in these small game species. Archery hunts are scheduled on the West Fork section. A large campground is located at the West Fork check station; however, there are no camping facilities available at the East Fork check station.

## Pisgah Wildlife Management Area

The forerunner of all the western wildlife management areas is the Pisgah. It lies on United States Forest Service land in Buncombe, Henderson, and Transylvania counties and is over 86,300 acres in size. The major attraction of this area is deer hunting. Good squirrel, grouse, raccoon and opossum hunting is also provided. Party hunts for bear with dogs and archery hunts are also scheduled. Those who prefer hunting under primitive conditions and in relatively remote sections can participate in the wilderness hunts on Bradley and Cantrell Creeks. Execllent camping facilities are available near the check stations at North Mills, Bent Creek and Davidson River. There are no camping facilities at Turkey Pen or Gloucester.

Hunting as a form of outdoor recreation is tops and the opportunities in Western North Carolina are numerous. If you are one of those who have not yet seen or enjoyed the beautiful mountains, clear streams and good climate of Western North Carolina, you have something to look forward to. ◆

# How Fish Hear

**by J. H. Cornell**
Chief, Division of Inland Fisheries

JUST like cows or people or dickey birds, a fish hears with his ears. He even has an extra hearing department to pick up sound waves which people cannot hear at all.

But most anyone will tell you that a fish has no ears—just because they do not show. We are used to thinking of ears as a flap of skin on each side of a person's head, which serve as a funnel to pick up sound waves as they come along through the air. These funnels, called the outer ear, simply collect the vibrations from the air and send them down a tube to the inside of the skull where they reach the middle ear. This consists of the ear drum, a membrane which changes air vibrations to mechanical vibrations, and which sends the vibrations along through three bones called the anvil, hammer, and stirrup. The vibrations are picked up by the inner ear, which is a hollow bone containing fluid. The vibrations reaching this fluid register on the nerve endings of the auditory nerve and it carries the messages of sound to the brain.

So, you see, the real function of hearing takes place in the inner ear, and the other parts only serve to change vibrations coming through the air into vibrations in the ear fluid. All that complicated apparatus is needed because people live in air instead of water.

But the fish, living in water, has no use for the outer and middle ear. Water carries the sound waves much better than air, and all he needs is the actual hearing appartus embedded in his skull. The water in which he lives passes the sound waves directly to his ear, where the enclosed liquid registers the sound.

Since the fish does have an ear, and since he can hear noises carried by sound waves in the water, a successful fisherman must always be careful not to do anything which will set up vibrations in the water. When you go fishing, it's a mighty good idea not to bang the bottom of the boat with your tackle box or the anchor or the paddle. When you are sure just where that big bass is lying along the shore, it's good sense to shut off your motor some distance away, paddle carefully toward him, and then drift to within casting distance.

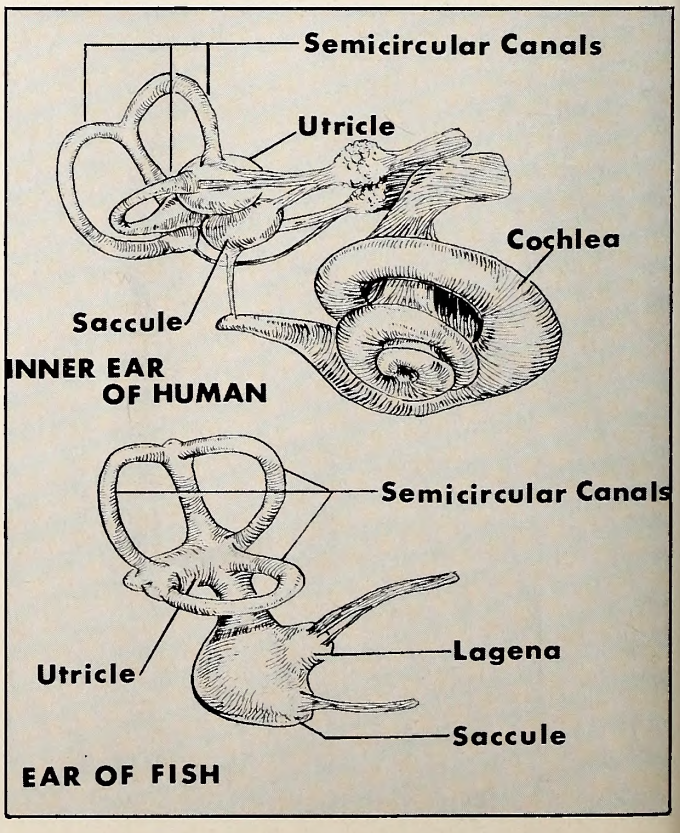
A fish can hear your paddle scrape the side of the boat if you are careless and let it touch. He can hear your plug slap the water; and if you lay it right over him, he may go away—fast. If you are going to wade, he can hear your footsteps on the bank before you step into the stream. The rock that rolls over in the riffle when you step on it may be a very loud noise to the fish in the pool below. In wading a stream, you should step just as carefully as if you were sneaking up on a buck in a laurel thicket.

You can expect the fish to hear anything that sets up vibrations in the water. Those vibrations are the sound waves his ear picks up. And from that principle, we can figure out what the fish does not hear. Ordinary conversation, for example, would not be expected to register on a fish's ear—although a lot of fishermen will give you an argument on that. Sound waves in the air tend to bounce off the surface of the water rather than enter it. Very loud noises might set up secondary vibrations in the water which the fish could hear, but your footstep on the bank would sound a lot louder.

If you want to check on this, go down to the old swimmin' hole this summer and get one of the boys to hold his head under water for a few seconds. First, talk to him in a normal tone of voice. Then take a rock in each hand, hold them under the surface, and grind them together—and ask him what he heard.

What it all boils down to is just this. Within certain frequency limits, or vibrations per second, our

**Compare the complicated human ear parts (top), with the simpler mechanism of the fish. This article describes the process by which fish detect sound waves.**



ears can pick up sound waves from the air. The fish hears only those vibrations which are in the water.

The scientists, though, still had to prove that this ear of the fish really registers sounds. They did it by studying the reactions of fish in an aquarium to vibrations introduced in the water. The most recent of many such tests was an experiment conducted with bluegill sunfish to determine the range of vibrations they could hear.

A feed box was put in the aquarium—empty when there was no sound, but containing food when the vibrator was working. In a short time the fish learned to come to the feed box when the vibrations were heard, but not to bother when there were none.

The oscillator produced vibrations starting with 35 cycles per second, and the frequency was doubled with each test. The bluegills answered the dinner call all the way from 35 cycles up to 8,960, but they did not hear 17,920. When you stop to think that the range of human hearing is from about 30 to 30,000, the sunfish really hears a great range of sounds. Previous investigators have made similar studies on many species of fish. Catfish are reported to respond to more than 13,000 cycles per second—a minnow to more than 7,000.

The doctors tell us that in the human ear, the nerve endings which pick up the sensation of sound are located in the spiral cochlea, which is a process of the saccule. The fish ear has no cochlea, but only a minor projection from the saccule, called the lagena. It was argued for many years that a fish could not hear because the cochlea was lacking.

To settle the argument, an investigator put a fish to sleep with an anesthetic and operated on him. The saccule and lagena were removed. It was found that the fish still responded to vibrations below 1,376 but to none above that. These parts, then were responsible for most of the hearing, and for all of the higher tones.

In a later operation, the utricule was removed and the fish failed to respond to vibrations above 172 cycles per second. The subsequent removal of the semicircular canals made no difference in the hearing of extremely low tones, so it was concluded that the ear received all vibrations above 172 per second that were within the fish's range but that the lower ones must be received by some other means.

An incidental observation in this experiment showed that the semi-circular canals in a fish's ear serve exactly the same purpose that they do in ours. When the saccule and lagena were removed, most of the hearing was gone but the fish kept his balance. When only the semicircular canals were removed, the fish could no longer maintain his equilibrium.

These canals, each being at right angles to the other two, are filled with a fluid which passes over nerve endings as the fish moves, telling him whether he is swimming up, down, or on his side. Even though they are a part of the ear structure, they have nothing to do with the sense of hearing. Small bulbs of bone are unattached within these canals and are free to move about in the fluid, helping to tell the fish of changes in direction or balance. These bones are called otoliths or "lucky stones."

Now as you know, some fish have air-bladders and some do not. Of those that have them, some use them as amplifiers for their hearing system. Among the suckers, carp, and catfishes, nature arranged for the air-bladder to be used as a sounding box, much like the body of a violin which increases the volume of sound produced by the strings. A series of bones, derived from the forward vertebrae of the spine, rest with one end on the air-bladder and the other end on the ear capsules.

Those bones are called Weberian ossicles. Fish which have them are able to hear very faint sounds which other fish could not hear at all. Perhaps it is unfortuate for our game fish, such as trout and bass, that they do not have built-in amplifiers in their hearing systems, too.

And now let's take a look at the most amazing part of the fish's hearing equipment. Although the ear hears most of the tones within the fish's range, the extremely low tones are heard by means of the lateral line. Take a look at the side of a fish and you will see the lateral line, usually extending from the gill cover to the tail, as a series of pores opening through the scales and the skin. Beneath the skin and scales is a mucus-filled canal into which the pores open. Parallel with this canal is a main nerve which sends many branches into the canal.

For many years it was assumed that the lateral line canal was a sense organ and had something to do with hearing, since the ear sac appeared to be an outgrowth of it. But it was not until an investigator cut the nerve leading from the lateral line to the brain that its exact function was discovered. It was established that the lateral line was able to record tones with vibrations of such low frequency that they were not picked up by the fish's ear, and were even below our own range of hearing.

Now imagine what this means to the fish! He can be sitting perfectly still and hear the vibrations from the swimming motions of another fish going past—or approaching. It might tell him how to get a dinner, or to keep from being one. Probably just as important to the fish is that he can go swimming along at night, or in muddy water, and the vibrations from his own swimming will strike an obstacle, such as a rock, and bounce back like an echo so he can hear it. This must be the way fish can move around at night without bumping into things—or how they keep from continually running into the walls of an aquarium which they cannot see. They have the original radar system—built in!

Suppose we had a lateral line that worked the same way. When we get in an argument some time and pick up a beautiful shiner—and when a sympathetic friend says "Where did you get the black eye?"—we couldn't say "Why I just ran into a door in the dark." It sure would ruin a beautiful alibi. But then, maybe a fish doesn't have any use for alibis. ◆

# Youth On The Go

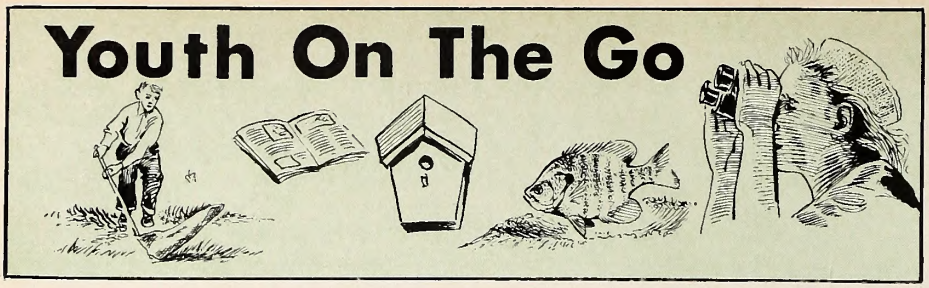


PHOTO BY F. S. BARKALOW

PHOTO BY LUTHER PARTIN

**A leaf nest (left) appears as an armload of leaves deposited in a treetop. Wind storms may dislodge the home. Above, bushy tail peers at the photographer, perhaps hoping for a handout.**

HOWDY, howdy boys and girls everywhere. I'll bet you'll recognize me, but if you don't, well, I'm Samantha the squirrel. Oh, so you've seen me in your neighbor's yard or maybe on the Square in your town. My relatives and I live almost everywhere in the U. S. A.

My closest kinfolk, the gray squirrel family and my cousins, the red squirrels, live mostly in trees. Oh, I suppose you've seen us chasing each other across lawns and up trees; we do seem to have quite a bit of fun. We gray squirrels are larger than our cousins and when we meet, we drive the reds away. Other than that, we get along fairly well.

My relatives, on the gray squirrel side of the family, usually live in hollow trees with a hole for the doorway. But we do have summer homes as some of you folks do.

This summer home is usually in the same tree and is made of twigs, leaves and bark with a lining of soft material. From the ground it looks like a ball of trash in the treetops. Four or five baby squirrels are raised in this home and are soon taught the tricks of the squirrel trade.

We gray squirrels don't store up lots and lots of nuts like our chipmunk and red squirrel cousins do. Why? Because we don't hibernate during the winter. My red squirrel cousin lives mostly in forests and wooded areas and nuts are his favorite food. Oh, he eats tender leaves, mushrooms and berries too. He's smart enough to know which mushrooms are poisonous and he easily avoids them. But during the fall months, while I'm playing, he is busy gathering and storing for the winter months ahead when he will be hibernating. It seems a shame for him to have to work so hard while I play!

Boys and girls, please don't try to catch one of us. We are very excitable when caught and we may very seriously hurt you with our claws or sharp teeth trying to escape. We were meant to be free. If caught, we may even break our teeth in hopes of chewing our way out of a trap or cage.

Even though our cousin red squirrel seldom ever drinks from a stream or pond, he does make cuts in the bark of maple and birth trees and drinks the sap. You humans think you're smart by tapping trees for maple syrup in the spring, but the squirrel family has been doing it for centuries. Maybe we aren't as dumb as we look!

Oh, I've got to run now here comes my brother Sammy, and he's ready for a game of tag in that pretty green yard near you. But remember, the next time you watch us, we are watching you too, and thinking how lucky we are to be free! ◆

Samantha Squirrel

PHOTO BY F. S. BARKALOW

**The trio at left explore the world at about 7 weeks of age. Above, they have grown considerably but still stay close to home. Famous for unerringly finding buried food, this adult (below) has "misplaced" a hickory nut.**

PHOTO BY JOEL ARRINGTON

# From the Magna Carta to Carlsbad Caverns*

by Will Johns

AS a jet flies, it is more than 5,300 air miles from Runnymede, on the bank of the River Thames near London, to Carlsbad Caverns, New Mexico. In historic time, more than seven centuries separate the two points. But in principle, they now share a lot in common.

At Runnymede, on June 15, 1215, the barons of England forced King John to approve a Great Charter (Magna Carta). It marked the beginning of democracy in England—the first time that anyone had limited the absolute power of the king. Among its 63 articles, the Magna Carta changed the ownership of wild game. Prior to that date, the ownership of wild birds and animals was vested in the English king, who claimed such ownership in his individual capacity and as a personal perogative. No one could acquire ownership in or title to game except by reason of a special license of the king—a license which was rarely granted. Hunting became the sport of kings and the nobility; the common people were excluded and penalties for poaching were severe. One writer on that period says: "To gain the right of killing a partridge required 50 times the amount of property as to vote for a Knight of the Shire. It was as great a crime to kill one of the King's deer as to kill one of his subjects." Such total absolute power gave rise to rebellion, not only among the barons, but also among such uncommon people as the famed Robin Hood. Without the Magna Carta, organized society would have fallen in the face of civil disobedience.

At Carlsbad Caverns National Park, the ownership of wild game is again being challenged and its legal title the subject of controversy. Not since this Nation was first settled by the colonists has the legal status of resident wildlife been so seriously threatened. Those colonists brought with them, in addition to bravery, courage, and the strong desire for freedom, the common-law concepts of England to govern their affairs. In this country they and a host of their descendents have held that game is owned by the "State" in its sovereign capacity in trust for the people—all the people. An individual may acquire an absolute property right in game only as a matter of privilege, not as a matter of right, and only under the conditions decreed by the proper legislative body. With the exception of migratory species, wildlife in America has been owned, managed, regulated, harvested, and protected by each and every state, acting through state legislatures and administered by state government agencies. Unless the states have ceded ownership to the Federal government (as they occasionally did under specific conditions, such as at Yellowstone National Park), resident species of fish and game have been treated under the concept first spelled out in the Magna Carta.

The challenge to that concept at Carlsbad Caverns National Park started peacefully enough. Early last fall, National Park Service officials announced plans to undertake a research project entitled "Deer—Range Ecology Study" on the 46,753-acre area just north of the Texas line and a place more famous for caves and bats than for deer. On October 5, Park Superintendent Neal G. Guse wrote William S. Huey, Chief of the Game Management Branch, New Mexico Department of Game and Fish, to advise him of this project. In his letter, Guse said: "Research Biologist Walter H. Kittams and his assistant will be examing paunches and determining condition of deer obtained within the boundaries of the park by members of our uniformed staff. It is also possible that paunches of hunter-killed deer near the park boundary will be utilized if conditions warrant. At the present time we are stipulating that no more than 50 deer will be taken in the park in a 2-year period."

Huey wrote back on October 9, to express pleasure that the Park Service was undertaking such a study, even though Department game biologists had made a similar study on comparable range in the Guadalupe Mountains and provided Park Service personnel with their reports. Huey pointed out, however, that "before any collecting is done, it will be necessary for us to issue the proper collecting permit to cover this activity. If you will furnish us a list of the personnel whom you plan to assign the collection of these deer, we will be happy to issue the necessary permits and to make arrangements for the legal disposition of the carcasses."

Two weeks later, on October 31, Superintendent Guse replied to Huey's letter. In one single sentence, he summed up the basic point of issue which has strained relationships between some Federal officials, and particularly their legal counsels, and directors of many state fish and game agencies in recent months. In just 28 words, the National Park Service official spelled out the threat to the concept of the Magna Carta and the historic legal status of game in America. "Inasmuch as this is a Federal project carried out on Federal lands," he wrote, "we do not consider it necessary that our men have collecting permits issued by your Department."

Then, as if to rub salt into a wound, the shooting started. On December 18, Frank C. Hibben, Chairman of the New Mexico Game Commission, announced

that at least 12 deer had been killed by park rangers. "This intentional and flagrant violation of our state game laws," Hibben said, "is obviously part of a planned effort by the National Park Service to establish Federal ownership and management of all wildlife on park lands. We will vigorously oppose any such action by any agency of the Federal government and seek the proper remedy in the courts. We expect many of the other states will ask the Court's permission to intervene in support of the basic doctrine of state ownership of wildlife." And to make matters even worse, the deer that were killed, according to a National Park official, "were left in the field to follow the natural process of returning to the land, —in other words, to rot."

After appeals to top-ranking Federal officials, including the Director of the National Park Service and the Secretary of the Interior, failed to produce any administrative action to correct the situation, the New Mexico state agency filed an injunction against further shooting of deer in the Park before the U. S. District Court in Albuquerque. A hearing was scheduled for December 22, but because of a motion filed by U. S. Attorneys for dismissal (a motion which was denied by the Federal judge on December 21), the hearing was postponed.

New Mexico will have plenty of support, both moral and otherwise, from other states. Most state officials feel this is a precedent setting challenge. If the Federal government can set its own regulations on resident wildlife (including the killing of wild birds and animals when they please), other landowners could claim the same right. Chaos would result. Carried into widespread practice, the authority of the States to issue licenses and permits for hunting and fishing could be eroded away. Most state conservation departments subsist on the revenue derived from the sale of hunting and fishing licenses. The loss of this income would certainly restrict, if not stop, wildlife management programs by state fish and game departments which benefit not only resident game species, but a wide range of other wildlife as well. The states agree that the Federal government, like any landowner, has the full right and authority to restrict hunting and fishing, even to the point of prohibiting hunting and fishing. They do not agree, however, that the Federal government has the legal right or authority to permit the killing of game and fish above or beyond state laws, rules and regulations applicable to all the rest of the lands within state borders.

By perhaps not so strange coincidence, the New Mexico action has a somewhat direct connection to a bill introduced in the 90th Congress (H. R. 8377), by a New Mexico Congressman—E. S. Johnny Walker. The purpose of the Walker Bill (and similar draft legislation prepared by the Internattional Association of Game, Fish and Conservation Commissioners) is "To declare and determine the policy by the Congress with respect to the primary authority of the several states to control, regulate and manage fish and wildlife within their territorial boundaries; to confirm to the several states such primary authority and responsibility; to relinquish, disavow and disclaim any power of the United States with respect to the management, regulation and control of fish and wildlife on lands owned by the United States, and specifying the exceptions applicable thereto."

Federal lawyers in the Department of the Interior obviously have decided not to await the outcome of the Walker Bill or other legislative proposals. They obviously have chosen to ignore rulings and decisions by many courts across the country, including a decision by at least one State Supreme Court which clearly states: "Wild game of a state belongs to the people, in their collective sovereign capacity; and is not the subject of private ownership, except insofar as the people may elect to make it so. That its taking, possession, and the disposition thereof is the subject of legislative enactment." Some Federal officials and their legal counsels apparently have chosen to ignore the concept of law which has governed English speaking nations since the Magna Carta was signed by a king those many long years ago. Like airplane pilots, however, there may be old lawyers and there may be brave lawyers, but seldom are there old, brave lawyers, at least not when it comes to deciding who owns resident species of fish and wildlife in the various states, who can kill it regardless of legally established hunting seasons, bag and possession limits, and proper regulations concerning its fair and equitable harvest. ⬍⬍

*Reprinted from *Conservation News*

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The long-established doctrine of states' rights of ownership and control over "resident" wildlife species on all lands within state boundaries will be tested in Albuquerque, N.M., Federal District Court.

Results of the pending legal proceedings will affect sportsmen throughout the nation and could undermine the fish and game departments of states with large percentages of federally-owned lands.

Plaintiff in the test case is the New Mexico Department of Game and Fish . . .

And defendant is Secretary of the interior Stuart Udall, a conservationist of considerable stature himself — albeit federally-oriented —and numerous officials of the National Park Service . . .

At question is 12 deer illegally killed and left to rot by the National Park Service rangers in Carlsbad Caverns National Park in deliberate violation of state game laws.

Frank C. Hibben, state game commission chairman, charges, "This intentional and flagrant violation of our state game laws is obviously part of a planned effort by the National Park Service to establish federal ownership and management of all wildlife on park lands."

In opening rounds of the court proceedings, Judge H. V. Payne heard the government's motion to dismiss the suit—and denied it.

Judge Payne agreed with the state, in comments relayed here to

Nicolas V. Olds, assistant attorney general for conservation for the state of Michigan, by George Harris, special assistant attorney general of the state of New Mexico.

The New Mexico Department of Fish and Game told the court Neal Guse, superintendent of Carlsbad Caverns National Park, advised the department in October of a proposed research project which would include killing of 50 deer over a two-year period.

But when offered support and assistance—including issuance of collector's permits and disposal of carcasses in accordance with state law—the department said the National Park Service stated that state permits to carry out a federal project on federally-owned land were considered unnecessary.

The deer killed are "being left in the field to follow the natural process of returning to the land," according to a National Park official.

Olds said the dispute with Secretary Udall has been smoldering since December, 1964, when the interior department's solicitor issued an opinion which said, in effect, that the federal government owns the fish and wildlife on land it owns.

"The federal government tends to view the state's position as one of trust interest rather than possessory title," Olds explained.

"This runs counter to the time-honored doctrine that states are owners of the fish and wildlife within their respective borders irrespective of land ownership," Olds noted.

During the past two years considerable concern has developed among state conservation and sportsmen's groups about the apparent tendency of various federal agencies to encroach upon rights of states to manage and control resident game species.

As a result, the International Association of Game, Fish and Conservation Commissioners has explored the possibility of congressional action to fully delineate areas of responsibility for these species.

"We would prefer the issue be settled in Congress," Olds explained. "There are five bills pending by which Congress could declare the authority.

"The National Park Service has never—in any state—deliberately violated state game laws as they did in this case.

"But for some reason they chose to take these deer in violation of the laws of the state of New Mexico —forcing the state into a law suit."

The court case may tend to delay action on the pending bills . . .

And it may decide whether sportsmen in many states will be paying the federal government to hunt and fish on lands of their own states . . .

Frank Mainville
Lansing, Michigan "State Journal"

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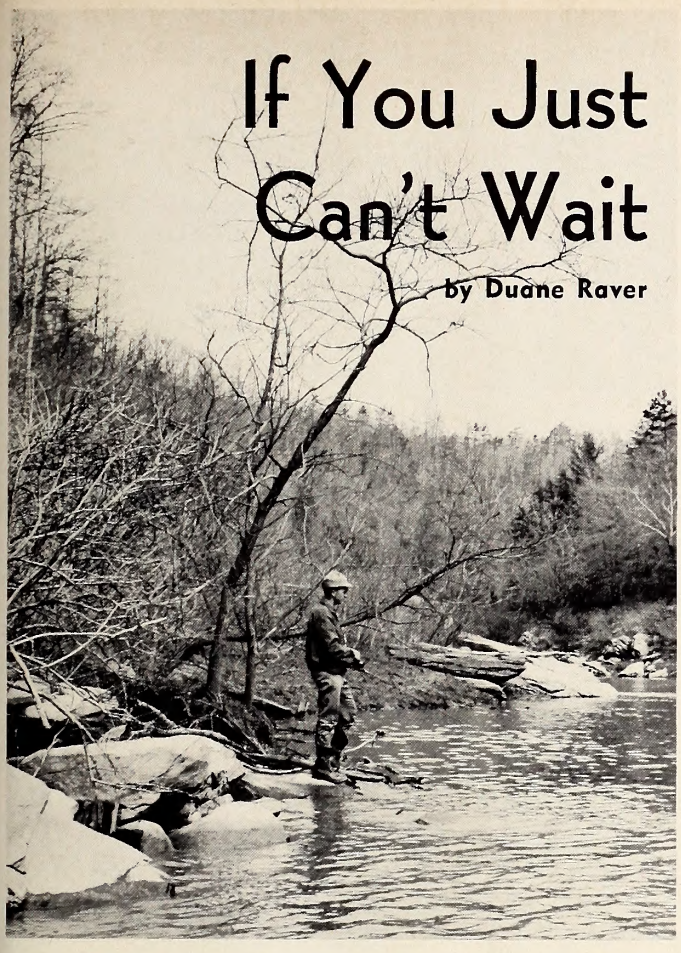
# Second Annual "*Wildlife* in North Carolina" Photo Contest

**RULES**

1. **Photographs taken in North Carolina, by North Carolina residents, which show any native North Carolina wildlife species will be eligible.**
2. **Eligible photographs must:**
   - **(a) Be taken in North Carolina between August 1, 1967 and July 31, 1968.**
   - **(b) Be taken and submitted by residents of North Carolina.**
   - **(c) Show native North Carolina wildlife species (any animal, fish, bird, insect, etc.) General outdoor or landscape photographs should not be submitted.**
3. **Only black and white prints should be submitted. Do not send negatives. However, negatives of the 10 winning photographs must be submitted on request.**
4. **DO NOT SUBMIT: (a) Prints or enlargements more than 8 x 10 inches in size (b) Prints with retouching or art work, or prints made from negatives with retouching or art work; (c) composite pictures, multiple printing or montages; (d) framed pictures.**
5. **Entrants may submit as many photographs as they wish. Each photograph should be submitted as a separate entry and each entry should include with the submitted photographs, the following information printed on an 8 x 10 sheet of paper: (a) Name of entrant; (b) Complete address and zip code of entrant; (c) Date photograph was taken; (d) Place photograph was taken; (e) Type of camera used; (f) Type of film used; (g) Shutter speed and f stop settings used (except for photographs taken with box cameras); (h) Type of flash equipment used if photographs were not taken with available light.**
6. **Contest is open only to amateur photographers. No photographer who earns more than $100 per year from photographic pursuits will be considered an amateur.**
7. **All entries must be received no later than midnight July 31, 1968. Mail entries to: WILDLIFE PHOTOGRAPHY CONTEST, Wildlife Magazine, Box 2919, Raleigh, North Carolina 27602.**
8. **All photographs submitted become the property of Wildlife Magazine and may not be returned.**
9. **First prize is $25.00; second price is $10.00; third prize is $5.00; seven honorable mention prizes of two-year subscriptions to Wildlife magazine. The winning photographs and honorable mentions will be printed in Wildlife magazine.**
10. **Photographs will be judged by Wildlife mgazine on the basis of photographic excellence, and the general appeal and interest of the subject. The decisions of the judges will be final.**

# If You Just Can't Wait

by Duane Raver



MAYBE by the time you read this, Spring will have sprung in Tarheelia—but don't count on it. This isn't pessimism, just recognition of the capriciousness of Miss March as she blusters out winter and ushers in spring. But if you simply can't wait until settled weather to try the ole' fishing hole, let's talk about the best ways to cash in on early spring angling.

One obvious approach is to hit the areas that warm up the quickest: geographically this means the southeastern counties, and water-wise, the shallowest sections. A fairly shallow mill pond in the lower portion of the coastal plain might be your best bet. Or perhaps a slow-moving stream meandering to the sea. Even the tiny creeks or branches that trickle from the swamps often have surprising fish populations and these fish further amaze us by feeding through chilly weather.

A second hint is to fish when the sun has the most effect on the water, and this usually means from around noon until late afternoon. A cloudy day, unless it is an unusually warm one, may not pan out. It may be a bit difficult to shun the early and late times that often are productive during midsummer, but a change in pattern very likely is in order. It is doubtful if you will find feeding "peaks" during the chilly months like you often experience from June to September.

Selection of a particular species of fish is bound to help the catch right about now. For example, some fish seem to eat more (and more frequently) in cold weather than others. If we stick to very general statements, we usually think of the chain pickerel, yellow perch, walleye, and crappie as the "winter fish." Of course, it's a known fact that these and many others are consistently hoisted from ice-covered lakes to the far north every winter. So, although you may take a big bucketful of bluegills your first March trip, the chances are better that you'll find the ones just mentioned, a bit more cooperative.

One species that moves about a great deal these March days is the striped bass or rock. And you may discover that one afternoon they are eager to nail your offering, and all but gone for the next several days. It is here that rules are made up as you go along. Rough weather, balmy days, glass calm or gale, there's no telling when the "rock" will show up.

Some of these exasperating traits they share with their fresh-water cousins, the white bass. These large-lake fish congregate near the mouths of rivers which run into the larger reservoirs, awaiting an unseen signal to dart upstream on the spring spawning runs. One of the best times to make good catches of the white bass (if you can stand the weather) is before this mass migration really gets underway. If you hit the streams when the silver masses are actually spawning, all you may get is an eye-bugging look at them as they slash around the rocks.

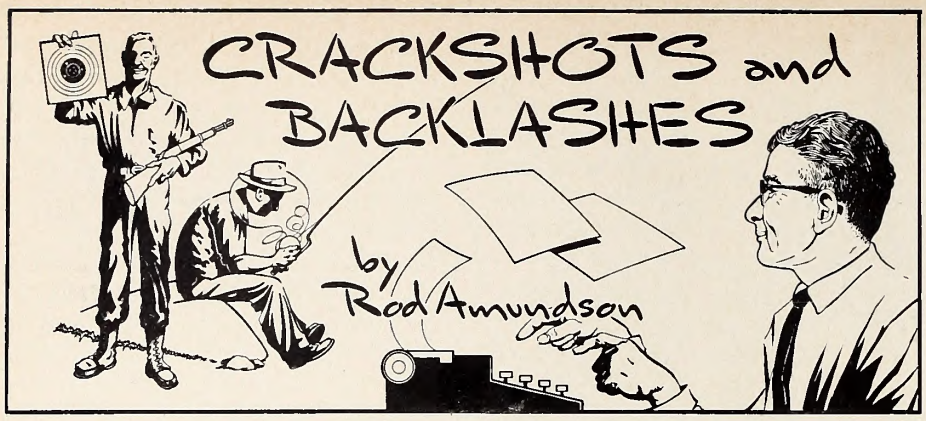
Walleyes follow this same pattern generally, but may vary some in time of ascent. Walleyes are one of the earliest of spawners and scarcely wait until the ice disappears before heading for the running waters. A good spot to try for both white bass and walleyes is the Little Tennessee River as it slips into Fontana.

There is much to say for live bait in early spring, whatever your quarry may be. Apparently one reason for this stems back to the physiology of the fish themselves. They simply don't move as rapidly when the water is cold, nor do they need as much food. Thus, if you can place the bait very near them, and keep it there for a spell, your chances of enticing the fish are better.

Yet plenty of early fish are taken on artificials each spring. Unless stream flows demand otherwise, move the lure just as slowly as you can. And for the same reasons, work every bit of water thoroughly. Water may be on the dingy side from spring rains and runoff, and visibility is poor to begin with. And a fish may want more than one look to make up that fishy mind of his.

Spring and spinners seem to go together. They are flashy, can be fished at a wide range of depths, come in many sizes, work well in swift or still waters, and seem to attract a wide variety of fish.

So, if you must go, head south and east for pickerel-yellow perch water, far west for walleye-white bass reservoirs, fish slowly during the warmest part of the day . . . with a spinner!




ONE of these first months you may notice a different address label on this magazine. As soon as the proper equipment can be obtained, your label will be only 7/8-inch from top to bottom, but about the same length as the present one.

With a monthly circulation of more than 111,000, it presently takes four and one-half days of machine records equipment time to run the mailing list. New equipment would cut this to two days, a tremendous saving of valuable machine time.

But this is only one step. Believe it or not, it is possible to computerize the entire mailing list by putting it on the same type of magnetic tape used in tape recorders. Your name and your address then become mere magnetic blips on a roll of ironized plastic!

How would new names, or changes of address be handled? Simple, in principle. These are recorded on another tape, the two tapes fed into the machine, and at the appropriate time one tape stops while the other one records that change on a master new tape.

We live in an age of computers, and agencies and businesses that do not keep abreast of new developments can only lag behind. Electronic equipment used by the Wildlife Resources Commission has a wide variety of uses. It involves millions of licenses and permits, analyzes research data, and soon will be used to tell us and you how many hunters made how many trips afield to bag how much and what kind of game.

The personal touch is not entirely gone. Computers have to be programmed, and it takes skilled, highly trained people to do the job. There is a catchy formula used by computer operators: GI =GO. Translated, this means "garbage in equals garbage out."

All of us, or at least our names, have been computerized in one way or another. But we think of our readers and the sportsmen we serve as people, not a bunch of magnetic blips or holes in a machine records card.

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A couple of years ago, the Times-News compiled a list of Alamance County angling records. Since no names were used and since the newspaper has not been sued, it is perhaps fitting to publish a companion piece for the hunters hereabouts. Following the same formula, no names will be revealed in order to protect the guilty and also in order to protect one outdoor reporter (who fears that his health might become impaired were he to use names).

Without further ado, here are the records:

1)—Most briar scratches . . . 436.

2)—Most letters mailed in opposition of Dodd Bill . . . 365.

3)—Most times thumb caught in breech of gun . . . 6.

4)—Most shells shot without killing dove . . . 14 boxes.

5)—Most novel game recipe . . . boiled skeet targets.

6)—Most times caught in woods without tissue paper . . . 14.

7)—Most times fell asleep on deer stand . . . 8.

8)—Most times dog lost . . . 41.

9)—Most times dog found . . . 13.

10—Most times hunter lost . . . 34.

11)—Most times hunter found . . . 33 (hunter still lost after last trip).

12)—Most raw turnips eaten in field . . . 31.

14)—Most money lost teaching guide how to play poker . . . $4129.64.

15)—Most birds killed with one shot . . . 54 (hunter's gun went off in chicken coop while he was "borrowing" eggs).

16)—Most times checked by wildlife protector . . . 61 (unlucky cuss).

17)—Most cockleburrs caught in setter's tail . . . 78.

18)—Most cockleburrs caught in setter's ears . . . 49.

19)—Most cockleburrs in entire setter . . . 386.

20)—Most times shot decoy instead of live duck . . . 5.

21)—Most understanding wife . . . no entry.

22)—Least understanding wife . . . category cancelled.

23)—Most times fell in creek . . . 11.

24)—Longest swearing streak without using same word twice . . . 12 minutes, 13 seconds.

25)—Most times attacked in woods by fierce purple grizzlies . . . 22.

26)—Most lies told . . . none.

27)—Most teeny-weeny little white lies told . . . none.

28)—Biggest lie told . . . none.

Jim Dean
Burlington Times-News

### More Bobcats

DEAR SIR:

Just read the January issue of Wildlife In North Carolina, and as usual enjoyed it very much. Particularly the letter from Mr. Owen and his lucky shot on a bobcat. So I thought I would write so that he would know that someone else has enjoyed that same experience.

Now I know that I will not be alone in the sorrow that I will feel when I hear that the last bobcat has been killed with the aid of an electronic caller. And never again can I so much as dream that some day, again I will have the still shocking, suprise to find another bobcat stalk-

## KNOW YOUR PROTECTOR

**James E. Alston**

Wildlife Patrolman James E. Alston, stationed at Morehead City in Carteret County, was born April 5, 1938 in Bertie County. He is the son of Mr. and Mrs. H. H. Alston of Windsor, North Carolina. Jimmy graduated from Windsor High School and attended Chowan College and East Carolina University. He has completed eight years of service in the North Carolina Army Reserve National Guard.

Jimmy completed the Pre-service Training School for Wildlife Protectors at the Institute of Government in Chapel Hill in 1960. He was employed by the Division of Game in November, 1960 and stationed at Lake Mattamuskeet. In March, 1961, he was transferred to the Division of Protection as a Wildlife Protector Trainee and was stationed in Hyde County. In September, 1961, he was appointed Wildlife Protector and transferred to Askins in Craven County. He was promoted to Wildlife Patrolman in December, 1965 and stationed in Morehead City. Since his initial employment, he has completed six In-service Training Schools and serves as instructor in Pursuit Driving and Defensive Tactics Schools.

Mr. Alston is a member of the Carteret County Law Enforcement Officers Association and serves on the Board of Directors, a member of the Loyal Order of Moose, Lodge No. 1069, a National Rifle Association Hunter Safety Instructor and a member of the Southeastern Association of Game and Fish Commissioners, Law Enforcement Section.

Mr. Alston is married to the former Ann Marie Mitchell of Woodville and they have one son, Ed, age two. The Alstons are members of the First Baptist Church of Morehead City.

## DIVISION ENFORCEMENT RECORD FOR DECEMBER, 1967

| | |
|---|---|
| **HUNTING & FISHING** | |
| Persons chceked | 21,198 |
| Total prosecutions | 781 |
| Total convictions | 748 |
| Total cases not guilty | 16 |
| Total cases nol prossed | 17 |
| Total cases dismissed | 0 |
| Total fines collected | $10,740.35 |
| Total costs collected | $ 7,612.15 |
| **BOATING** | |
| Persons checked | 294 |
| Total prosecutions | 37 |
| Total convictions | 35 |
| Total cases not guilty | 2 |
| Total cases nol prossed | 0 |
| Total cases dismissed | 0 |
| Total fines collected | $ 112.00 |
| Total costs collected | $ 308.00 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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ing the same deer as I.

With the continued use of the electronic callers and the wholesale killing of so called varmits, by so called sportsmen, such a shot will not be made by many of us.

Bill Barbour
Fayetteville

DEAR SIR:

I was reading the January issue of Wildlife in N. C. and saw the article from Mr. Leon Owen of Greensboro, N. C. and would like to congratulate him.

Mr. Owen raised the question of a first. I do not wish to disappoint Mr. Owen, but am enclosing a photo of a bobcat that was killed on a bow hunt October 30, 1965 by J. C. Wilson of Mooresville, N. C.

This bobcat was killed on the Daniel Boone Refuge, out of the Edgemont checking station, and was recorded there by Protector Troy Moore.

This bobcat also was taken with one shot in the process of hunting, and credit for a first should go to J. C. Wilson, unless someone has an earlier recorded kill.

M. G. Bostian
Mooresville

DEAR SIR:

This letter is in reference to the letter in the January issue of WILDLIFE IN NORTH CAROLINA written by Mr. Leon Owens of Greensboro stating where he had killed a bobcat on a bow and arrow hunt in the Uwharrie refuge on November 2.

My brother-in-law, Joe C. Sutton, of Sylva, killed a bobcat while deer hunting with bow and arrow in Standing Indian Refuge, October 1966.

In November 1965, while on gun hunt for bucks only, Joe killed a buck which had one of the largest racks taken in Standing Indian.

Yours truly,
Jo Ann Sutton

### Hunter Training

DEAR SIR:

In the January issue of *Wildlife* you asked for comments on the possibility of having a training program for hunters who purchased their first hunting licenses.

Although I am 15 years old, I am very much in favor of this plan. I think it would give many "shooters" (not hunters) a dose of gun safety that they would otherwise not receive.

I'm sure I and many other hunters and shooters would feel better if we knew that every one around us knew the rules and regulations of safe hunting. (I do not mean that I know all the rules.) If a couple of my friends knew a little more gun safety, I know I would enjoy hunting with them more. I feel this program would help people like them.

I disagree with your plan in only one way. I feel that the money used to pay for the program should come from another source instead of from the hunting license money. This money goes for a very good cause and I feel that it would be more beneficial to the hunters if the money for the program came from somewhere else. I think a good source of money for this program would be from the hunting and fishing fines. I hope my letter and suggestions will do some good.

Sincerely,
Jim Cox, Jr.
Salisbury

### Dollars and Sense

DEAR SIR:

I found the article "Bay Stripers" in the November issue of Wildlife

very interesting. It left me with this unanswered question in mind. Why can't a state with our resources equal or exceed California's approach? We should probably go a step further and declare white perch as well as stripers a game fish. This regulation to include the entire coast and sounds, placing a creel limit which would insure an abundant supply of all species for all the sport fishermen we should entice to come to North Carolina. This would probaby increase our catch from a mere 200,000 to 2,000,000 a year, which looks as though it would mean about $18,000,000 for the poor eastern section of this state. The state treasury should have approximately $500,000 in sales taxes, besides the out of state license fees which could be collected.

C. J. Freeman
Rich Square

## Reel Help

DEAR SIRS:

There are four fishermen, members of the Watauga County Wildlife Club, who for years have used the Heddon Spin Pal 240 manual pickup spinning reel.

This reel is no longer on the market in fact it is no longer made.

I know there is no advertising in the Wildlife In N. C. and I think that is a good policy.

I was wondering if there is any way we could ask the readers of the magazine to help us locate some of these reels.

Sincerely yours,
W. C. Richardson
Secretary Watauga County
Wildlife Club

## Any Help?

DEAR SIR:

As a subscriber of your fine and interesting magazine, I would like to know about any taxidermist schools available in North Carolina or courses conducted on taxidermy. I'm very interested in this field and hope to make an outside career of it. I do a lot of hunting and fishing and I have obtained some very beautiful trophies.

Taxidermy is an art which helps us preserve nature's wildlife and gives us memories of our hunting trips. It is also a very profitable skill, which not every one can do.

If you have any information on taxidermy, please let me know as soon as possible. This information can also be helpful to others who may be interested.

Thank you very much.

Don Shoaf
Winston-Salem

## Hunter Safety Instructions

DEAR SIRS:

Refer your Crackshots & Backlashes January 1968 Issue. I agree that we need hunter safety training.

Who is going to do the training?—I believe we have now, or can have enough Hunter Safety Instructors in six or eight months to do the training. There are a number of Hunter Safety Instructors who never renew because they don't get any cooperation from radio, the press, or the people.

I believe that if ever any one is paid to do the training, that it should be the registered Safety Instructors; or those who have had this qualifications, but do not now instruct for reason of no support from the people. I don't believe we should forget those who have used their time and money to teach Hunter Safety, and jerk up some stooge and pay him.

I am one who did not instruct *any one* in 1967. I am always willing and ready, but people do not want something for free.

I believe that we should try first to get people to volunteer for these instructions, and then immediately require them if necessary. Also radio, TV, and press should give the necessary public service space and time for free.

I notice you say "Sixteen year olds" because this is the age requirement for hunting license. I believe this is the place to start—and of course instruct those who are younger if possible. And we might even get a chance at some of the *adults*.

Yours in Service,
Sterling L. Nicholson
Sec. Unit 2, Rescue,
Glenville

DEAR SIR:

I read with interest your editorial, under Crackshots & Backlashes, in the January issue of WILDLIFE. Since you requested comments on the subject of hunter safety instruction for young people, I should like to offer the following:

My husband and I are leaders of the Middlefork 4-H Club of Forsyth County. In September and October, 1967, the Forsyth County 4-H Clubs, under the auspices of Mr. Jesse Jackson, Assistant County Agent, conducted a Hunter Safety Course, taught by my husband who is an NRA Safety Instructor. The classes were conducted at the Agriculture Building for two hours once a week and ran for four weeks. Upon completion of the lessons a test was given and the students were graded. Those who pased were given an NRA Safe Hunter patch, a certificate, and trip to a local skeet club to actually handle a gun. This course was strictly experimental and there was no charge to the young people on the part of the Forsyth County 4-H Clubs. Since its completion there have been many requests that it be continued next year, and plans have been made to run it again in September, 1968, making it open to *all* interested young people, not just 4-H members. Our 11 year old son and 12 year old daughter completed the course, and we feel that, as a result, they are as safe if not safer hunters than most adults.

In view of its success here, I suggest that anyone interested in other areas of the state contact their local 4-H Clubs and see if they can't do the same thing. If they would like further information, we would be happy to help in any way we can. Hunter safety instruction is a great need and this could be one way of handling that need.

Very truly yours,
Mrs. Walter F. Boerner, Leader
Middle Fork 4-H Club
Winston-Salem

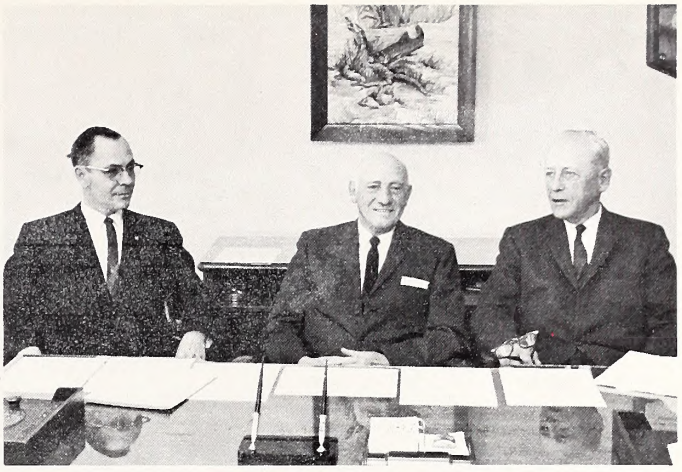
## Quail Family

DEAR SIR:

We had a pair of quail in a cage and had put some grass and broom straw in the back of the cage. The hen laid and the bob white sat on the eggs and hatched them. I am sending some pictures showing the bob white and one of the little ones.

Sincerely,
Mrs. W. Howard Furr
Concord

**Winners in the annual Wildlife in North Carolina subscription campaign are shown here (left to right) receiving their awards from Commission Chairman Hugh Chatham. First, John Willis; second, A. E. Jones; third, Gene Abernethy; fourth, C. A. Manning, Jr.**



**These are the new officers elected by the Wildlife Resources Commission at its January meeting. Chairman, T. N. Massie, Sylva (center); Vice Chairman, Dr. Joe M. Anderson, Jr., New Bern (left); Secretary, J. Holt Evans, Enfield. Election of officers is held annually.**

## Rabies

DEAR SIR:

I'd be grateful if you would give me any information which you have concerning the known instances of feral rabies within this state and primarily within a thirty mile radius of Fayetteville.

I'm interested in this because within the period of the past two or two and one-half or three years, either while hunting or while driving on country roads I have seen two definitely sick and paralytic foxes, and one which may have been so. I have seen one sick squirrel. I know that animals are subject to diseases and this may not have represented rabies but certainly it seems to me that two of the foxes were definitely paralytic to a degree.

As far as I know there has been no known proved instance of domestic rabies in Cumberland or any surrounded counties for at least ten years. I do think that there is a possibility of rabies in wild animals.

I think it's important that this possibility be considered and that hunters be warned to think of this when they see a sick animal, and if they kill one, ice the animal and deliver it to the nearest public health officer.

I believe that feral rabies, particularly in foxes, is a distinct possibility for this part of North Carolina.

John W. Baluss, Jr., M.D.
907 Hay Street
Fayetteville

• **continued from page 12**

when in water obviously infested with obstructions. While every docking or stopping of a boat should be planned, there are times when a slight miscalculation requires a quick shift to reverse and slight throttle advancement to slow the craft. The technique usually works unless of course, the motor has kicked out and the prop is biting chunks of air behind your boat. Run her in lock most of the time. Put the item on your prestart check list.

## *Spring Is Just . . .*

"Fair and warmer"
The weather man says.
So we wash the car
and watch for bright rays.

Let's put the top down
and go for a drive.
The fresh, clean air
makes us feel gay and alive.

While the girls search
for sunglasses and such,
The boys load up
with something to munch.

Wait just a minute
for goodness sakes,
Whoever saw
such big snowflakes?

Curses for the weatherman?
No! Pity instead.
The same thing happened
to his gay plan.

Nola Hobby

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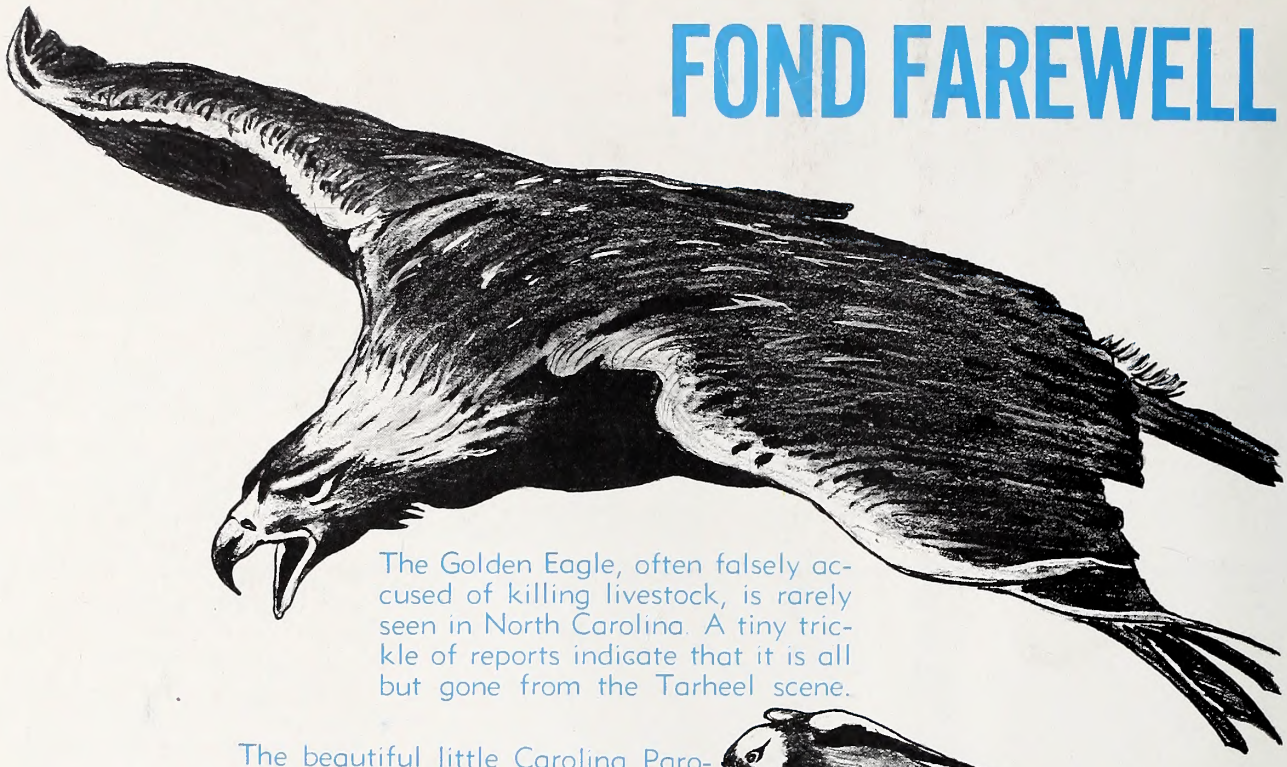
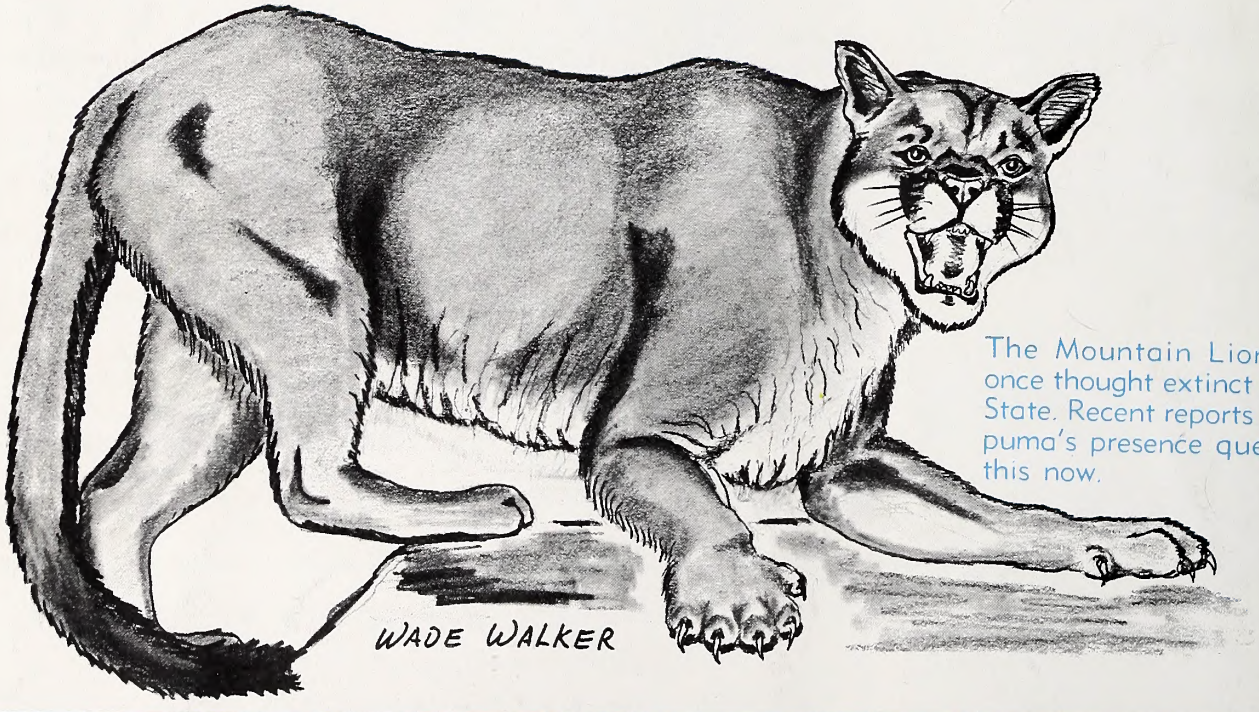


The Golden Eagle, often falsely accused of killing livestock, is rarely seen in North Carolina. A tiny trickle of reports indicate that it is all but gone from the Tarheel scene.

The beautiful little Carolina Parroquet was once abundant in North Carolina and now is gone forever. What will follow?




The Mountain Lion was once thought extinct in our State. Recent reports of the puma's presence question this now.

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North Carolina State Library,
Raleigh

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# Wildlife IN NORTH CAROLINA

25 CENTS / APRIL 1968

# Nature's Awakening

HE is risen and everything awakens from the winter's deep sleep. Seeds that have remained dormant during the cold months shyly push their heads above the soil. The countryside is soon bedecked with daffodils and crocus. These are among the first flowers to appear in beautiful colors.

The dogwood tree, from which legend says "The Cross" was fashioned, is a thing of beauty with its pink or white blossoms. If one looks closely, he can see the imprint of the nails and the stain of blood which is found only on the blooms of this tree.

However, the flora is not the only thing that "comes alive," the fauna too, revives and ventures forth into the fresh new world.

Mother bear stretches and yawns and motions her newborn cubs into action. The family strolls through the lovely green country —the young bruins may be lucky enough to get their first taste of honey today. Mama may stumble upon a hive of wild bees. She would immediately break open the hive and rob the insects of the golden nectar upon which they have been feasting all winter.

A frisky squirrel leaps from limb to limb of a big oak tree, as he enjoys the warm sunshine. His mouth waters at the thought of the succulent green shoots and new buds on which he will dine. This will be a welcome change from his winter fare of acorns and seeds.

A covey of quail walks quietly along the edge of the newly plowed field searching for tidbits.

A little lizard crawls along the top of a split rail fence which borders the winding dirt road. The tiny anole changes his color from a bright green to rusty brown, as he peers into each crack and crevice looking for insects.

Fluffy brown cottontails hop merrily about the meadowland. One lazy little bunny basks in the sun, looking for all the world like a portrait of the traditional Easter rabbit.

On a half submerged log, in the middle of a farm pond, several turtles sit quietly and survey the spring scene. They too have recently awakened from their winter nap.

The awakenening of the wild creatures of the woods and forests coincides with the Resurrection which is symbolic of the renewal of life. It is strange that the rebirth of nature occurs at the Easter season. For just as He is risen from the darkness of the tomb, so the inhabitants of the woods arise from hibernation.

**by Lynn Gause**

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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VOL. XXXII, NO. 4 APRIL, 1968

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EDITORIAL STAFF

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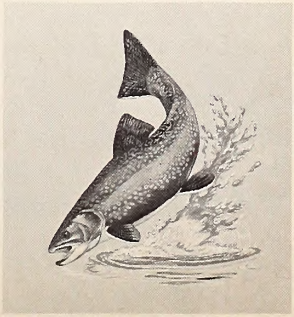


The brook trout comes in a variety of sizes and colors. But one thing they all share is a certain excitement and enchantment that no other fish conjures up in the minds of anglers. The brookie is usually considered to be the "aristocrat" of the three trout because of its demands for high quality water and precise living conditions. The brook trout is becoming more and more restricted to headwater streams. Painting by Duane Raver.

**by Dr. Frederick F. Fish**
*Assistant Chief, Division of Inland Fisheries*

OVER the years, the basic philsophy underlying trout management in North Carolina has been to use hatchery-reared "keeping size" trout as a buffer against the overexploitation of the wild trout populations and thus maintain satisfactory trout fishing. As angling pressure built up on a trout stream, more yearling fish were released during the season to support the catch rate and thereby the wild trout population would be held at a self-sustaining level. This fundamentally sound management policy has served fairly well but, at the moment, some dark clouds loom on the horizon indicating stormy weather ahead.

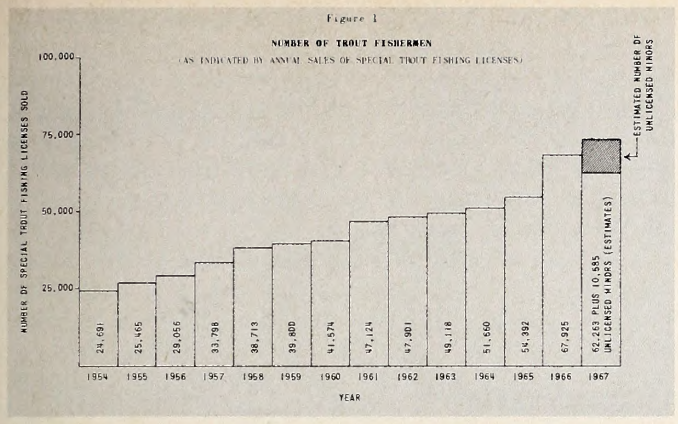
The factor that bids fair to undermine the success of this basic policy is the tremendous number of hatchery-reared fish now required in the face of steady increases in the number of trout fishermen to assure some fishing for the average angler. Few persons are aware of the explosive growth in the popularity of trout fishing that has occurred during the past few years—it has tripled in the short space of 14 years! Figure 1 shows the number of special trout licenses sold each year between 1954 and 1966 throughout which time every fisherman angling in Designated Trout Water was required to have this license. The same rising trend carried on, but in 1967 this license was no longer required of fishermen under 16 years of age so license sales no longer indicated the total number of trout fishermen.

## Up To Now

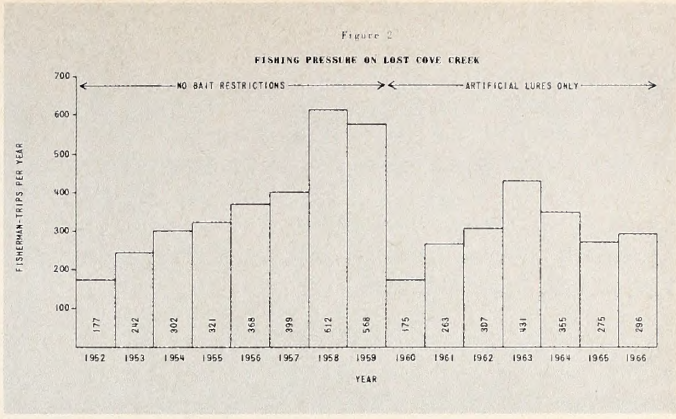
The basic philosophy of releasing yearling trout in numbers commensurate with rising fishing pressures has proved very effective in the Wildlife Management Area streams—where accurate catch records have been maintained over the past 15 years—and there is little reason to believe that comparable releases have been less successful in the Designated Trout Waters outside the Management Areas.

So far, so good—but a crossroads lies not far ahead where the decision must be faced whether or not to continue upon the present course. The issue will be precipitated when the number of yearling trout required to implement the current policy exceeds the capacity of existing hatchery facilities to produce these fish. The decision then will be inescapable whether to expand the hatchery facilities or somehow to make more efficient use of the number of trout we are now producing. Neither horn of this dilemma offers an easy—or even a palatable—solution.

There is no question that, within certain limits, trout fishing can be maintained at whatever level we may choose merely be controlling the number of yearling trout released. The number of yearling trout annually liberated in the Wildlife Management Areas streams during the past 12 years, and the total catches from those streams during the same years, exhibit an amazing degree of positive correlation—well into the area termed "highly significant" by the statisticians. To the layman, this fact means that quite irrespective of the wild-trout populations present, the larger the number of hatchery-reared yearling trout liberated, the greater




**In thirteen years, the army of trout fishermen has grown over two and one-half times. The number of miles of trout water has barely held its own during this same period.**




**These figures pretty well speak for themselves; with the advent of "artificial lures only" restrictions on Lost Cove Creek, many trout fishermen went elsewhere. What now?**

the total catch will be—and vice versa. It is just that simple. However, like so many simple solutions to complex problems, there is a catch to it and in this case the catch is economics.

Using 1964 as an example because collateral data are available for that year, the Commission's report for the 1964-1965 biennium stated the funds allotted for the operation of the trout hatcheries in 1964 totalled $134,575. The Statewide Creel Census data that year revealed that of the fisherman-contacts made by protectors along the Designated Trout Waters, 22 percent of the fishermen held statewide fishing licenses, 24 percent had combination licenses, 8 percent county licenses, 2 percent nonresident licenses and 1 percent had one-day resident licenses—the remaining 42 percent of the fisherman-contacts being license-exempt either as minors, landowners or county residents using natural baits. All had special trout licenses, however, so proportioning the license pattern encountered and the respective license costs among the 51,600 trout fishermen of 1964, it appears that the entire revenue contributed to the Commission by the trout fishermen that year approximated $150,000. The $15,000 differential between the income and the cost of operating the trout hatcheries was all that was left to finance protection of the trout resources, supervision of hatchery operations, amortization of the hatchery investment and the research needed for intelligent management. Clearly, management of trout fishing in North Carolina through the release of hatchery-propagated yearling trout no longer is an economically self-supporting operation under the current license structure—and particularly so when one recalls that approximately one-half the yearling trout annually released is contributed by the Federal hatcheries at no direct cost to North Carolina anglers.

In brief, expansion of the hatchery system is one road to maintaining future trout fishing which unquestionably would be effective—but also very expensive.

## Fish for Fun?

An alternate road towards solution of the trout pressure problems is encouraging fishing, but at the same time restricting the "take home" catch so that a trout may be caught more than once and thereby provide more sport, but less meat. In other words, develop the "fishing for fun" philosophy in one or more of its various aspects so that the same number, or even fewer, trout will sustain a far greater fishing pressure. This road, too, has its share of rocks—not the least being the fact that success of the "fishing for fun" philosophy is predicated upon the exclusive use of artificial lures as most trout taken on natural baits will not survive to be caught a second time. There is no room for the worm fisherman in this philosophy.

Suprisingly enough, artificial lures never have been as popular with the trout fishermen as they have with the largemouth bass fishermen of North Carolina. The 1964 Statewide Creel Census data revealed that only 13 percent of the anglers contacted along the Designated Trout Waters were using artificial lures exclusively whereas, statewide, 49 percent of the largemouth bass anglers were using artificials. Of the remaining trout fishermen contacted, 71 percent of them used only natural baits and the other 16 percent had been using both artificial and natural baits on the trip during which they were contacted. With almost three-fourths of the trout fishermen addicted to natural baits, patently a tremendous swing to artificial lures must come to pass before any type of "fishing for fun" will be accepted by the majority of the trout fishermen.

The trout fisherman apparently does not readily foresake his allegiance to natural baits. North Carolina has ventured part way into "fishing for fun" by declaring a few streams within Wildlife Management Areas "native trout" waters on which a minimum size and reduced creel limits were imposed along with the restriction that only artificial lures be used. The experience gained on these "native trout" waters strongly suggests that the natural-bait fisherman prefers to take his worm fishing elsewhere rather than convert to artificials and enjoy the fun. The fishing pressure generated on Lost Cove Creek in the Daniel Boone Wildlife Management Area prior to, and following, its designation as "native trout" water illustrates this point and is graphically presented in Figure 2. These data indicate little evidence of a rapidly ex-

panding acceptance of the "fishing for fun" philosophy among the rank and file of North Carolina's trout fishermen.

Apparently, the alternative of "fishing for fun" is not exactly the royal road to a solution of the pressure problem either. It too promises to sustain trout fishing under a high intensity of pressure but most bait users—and these comprise the overwhelming majority of the trout fishermen—are not yet receptive to the idea.

## Fishery Facts

The one reasonable solution of the enigma surrounding the future of trout fishing lies in acquiring the basic facts of the fishery. Armed with such facts, decisions for the future will be much easier to formulate and much sounder in substance. Few fishermen will question a decision based upon incontrovertible facts however distasteful the effects of that decision may be.

Trout management facts have been well documented for the 360-odd miles of trout streams within the Wildlife Management Areas but, aside from a few facts derived from the 1964 Statewide Creel Census, virtually nothing is known about the 1600-plus miles of Designated Trout Waters outside the Management Areas. These streams support a somewhat different type of fishery.

Because the Commission now is equipped to process the large volume of data associated with a study of this character, the Divisions of Inland Fisheries and Protection are programming a cooperative study during the 1968 season to acquire the statistics so long missing from the Designated Trout Waters. Should you happen to notice a protector busily jotting down notes after he interviews you on a trout stream next summer, be assured that his notes concern you only as a statistic and not as an individual.

The Commission also is appealing to the trout fishermen for their participation in this study. Immediately after the season closes on Labor Day, about one out of every ten trout fishermen will receive a questionnaire by mail seeking his opinions on certain facets of trout management as well as some essential information concerning the number of trout fishing trips he made during the 1968 season and how many trout were caught on each. You, as a trout fisherman, could contribute greatly to this study if you would maintain a written record of these two statistics—the number of times you go trout fishing and the number of trout you catch each time—during the coming season against the eventuality that your name will be drawn in the sample selected for mail survey. Even if your name should not turn up in the sample, your data will be just as valuable to the study if you will take the trouble to send them to the Commission next fall anway.

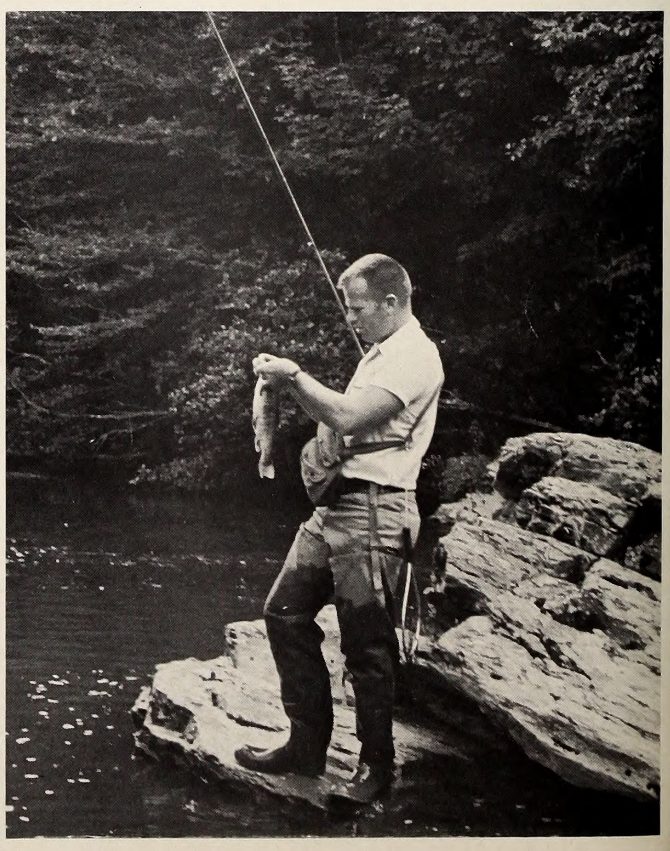
Hopefully, we will see the answer to trout fishing in the future more clearly one year hence than we do right now. ⬍

**It costs money to raise catchable-sized trout. These fingerlings being weighed and readied for transfer to hatchery ponds still are months away from stocking. It's expensive business.**

PHOTO BY DUANE RAVER

**Better not figure the cost of this one! Some day soon it may have to be returned to the water to be caught a second and third time. Our trout program is at the crossroads.**

PHOTO BY TOM JACKSON



# "I'm Pulling for the Dirt!"

AN EDITORIAL

"ONLY *You* Can Prevent Forest Fires", "Every Litter Bit Hurts", "The Game Law Violator Is A Thief" . . . we are deluged with so many slogans and commercials that perhaps we are getting immune to them. One fellow said that he was getting so weary of soap commercials on TV that he found himself "pulling for the dirt" in the battle.

This isn't a plea for fewer slogans or commercials, but rather a simple query about our reaction to those that apply to our out-of-door manners. We generally nod our heads when we see the suggestions about litter, but are we really doing our part? We get downright incensed about the "poor little deer" killed illegally, but are we willing to work for better wildlife management?

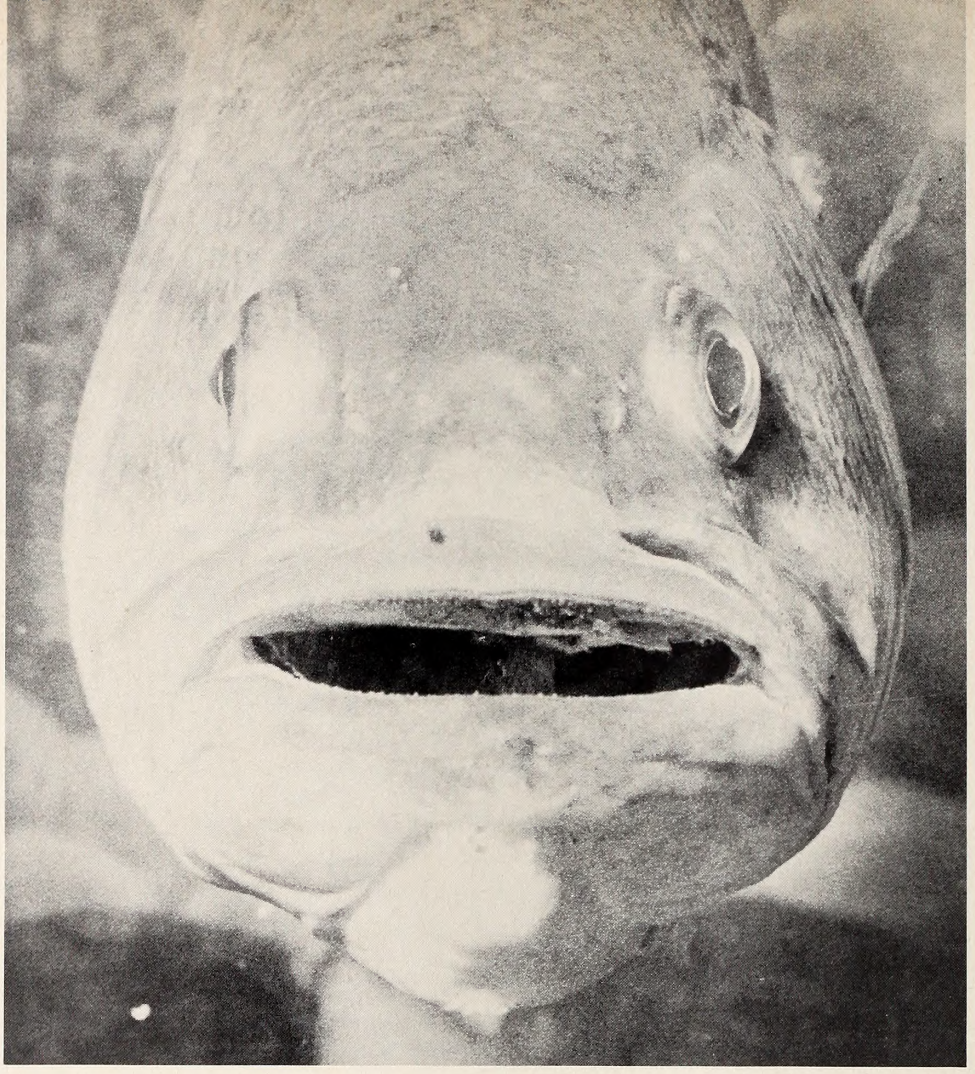
Those in the profession of managing our natural resources are constantly searching for keys to providing better hunting and fishing, greater timber yields, cleaner water, more productive soil, and even fresh air. The roads taken in these directions very often lead directly or indirectly back to the people . . . not "the other guy", but you and me. Most thoughtful, experienced, truthful men in the business of fish and game management are quick to admit that without the cooperation of the public, the efforts of any technical staff are seriously blunted if not lost entirely.

But what is our reaction? To the problem of simply keeping our out-door-doors clean, for example, is it "I'll get away with just as much as I can"? In these days of billions and billions of dollars for just about everything, we are numb to the amount that the clean up costs us each year. Yet to be sure we're not so stupid as to sanction paying someone to go around after us to clean up the mess we ourselves have made. Unless you are willing to face this problem right now, it can't do anything but get worse. Maybe we *are* "pulling for the dirt."

What would you do if a wild turkey flapped its way into gun range, closed season, and you with the shotgun ready? What about the wood duck that sails in a "few minutes" after legal shooting hours? The flock of doves that piles in after your legal limit is already grounded? And even the 125 bluegills, legally taken, but never used because you were "too tired" to clean them?

Not me! No siree! I'll back you, Wildlife Protector! Go get 'em! (But don't ask me to report any game law violations, please, or argue with the developers filling the marshes). Me, pull for the other side?? Look here, you're barking up the wrong tree, you are. Hey, what have I got to do to show you??

Duane Raver



# Why Do Fish Have Air-Bladders?

**by J. H. Cornell**

*Chief, Division of Inland Fisheries*

Photos by Jack Dermid

IT may be said that fish have air-bladders because Nature intended that they should have them. That is one answer. But if we choose to believe the geological evidence contained in the rock layers of the earth's crust, and the sequence of events shown by the fossils in them, then an interesting story unfolds.

We might conclude that the fish of today have air-bladders because there was a drought millions of years ago. That their ancestors of the time had to breathe air directly instead of taking it from the water through their gills, and Nature provided them with a lung for the purpose.

It has been a long time since the need for that lung developed, and over the intervening years it has not only changed its location but has been put to various uses entirely different from the original breathing apparatus. Today it may be of some assistance to a bream in standing guard over his nest at a particular depth without effort. Some fish use it to improve their hearing ability. Some use it as a sounding to make noises. Some still use it for breathing, and some have discarded it altogether.

These changes have required millions of years to accomplish, and to understand them we must look back through the pages of history—that history written in the earth itself. The different layers of rock, laid down one on another during the eons of time, have preserved for us the shells, and bones of the animals and the imprints of the leaves and stems of plants that fell into the sand or mud which later became rock.

These fossils clearly show which animals and plants were developed first, which ones have changed their characteristics in succeeding generations to meet changed conditions, and which have disappeared from the earth because they could not change. The changes take place slowly—so

slowly that man cannot recognize them in a lifetime. But over the thousands of years they all are recorded in the fossils and the rock layers.

Let's turn back the pages of geologic history only as far as the Devonian period—the Age of Fishes—when Nature tried her first experiments in providing animals with backbones instead of external skeletons—when fish became the dominant animals, and when the first forests grew on the land. Bacteria had already laid down the iron ore beds of Minnesota while it still was at the bottom of the sea. The Laurentian Mountains, where the Great Lakes are now located, had arisen and then been eroded away. The oceans had flooded the lands again and the Cambrian period had come—the Age of Swimming Insects—and the trilobites had left their fossils in the sands of time.

After some fifty million years at the bottom of the sea, the continent of North America rose again, and again the seas slowly covered it. This time the shell fishes became dominant, and as they died their shells made limestone deposits many feet thick on the ocean floor. We have them to thank for the limestone deposits of Iowa and Illinois and Tennessee, for the Portland cement of Pennsylvania, for the marbles of New England, and the lime of the "White Cliffs of Dover."

In another hundred million years or so, after the oceans had withdrawn and returned, and while coral reefs were developing at Hudson Bay and Greenland and where Chicago now stands, Nature experimented with an animal that could breathe air. Some vegetation developed on the land, and the first animals came out of the water. They were the forerunners of our present scorpions, some of them as much as ten feet long. It was at this time that a new kind of animal, just a few inches long, first appeared. It was covered with bony plates but it also had a backbone. It was the first animal to have an internal skeleton—a fish!

This was the end of the Silurian period and the beginning of the Devonian, after the North American continent had appeared above the oceans once more. During this period of some fifty millon years, the fish slowly lost their bony coverings and developed a more substantial internal skeleton. Many different kinds and shapes came from the original ones. They became the dominant animals of the time. Sharks became identifiable. In the Devonian shales of Ohio are found fossils of Dinichthys, the "terrible fish," twenty feet long and armed with two-foot-long teeth.

And then came the great drought. The fish had to go from the fresh water marshes into the salt water of the oceans, or they had to learn to breathe air. The drought came slowly, and Nature had time to provide a lung for the fish that did not make the change to salt water. Fins developed into stubbly legs, and the forerunners of the amphibians had arrived.

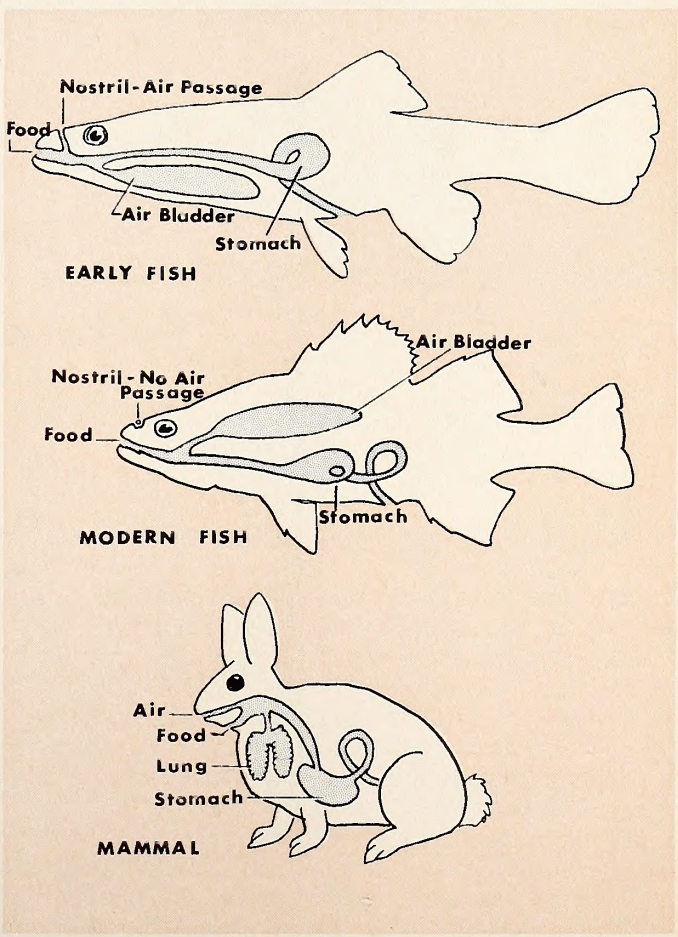
Not all the fish with lungs moved out on the land. Some stayed in the stagnant pools until fresh water returned. They were the ancestors of most of our present day fishes. Many changes have been made in most of our fishes during the three hundred million years since that time, but the African and South American lung-fishes appear to be almost exactly like their Devonian ancestors. At least, that is what the geological history book shows.

That primitive lung in the Devonian fish was located below the stomach, and not between the stomach and the backbone as it is in modern fish. The fishes that moved out on land had it located in front of their digestive apparatus, and since they gave rise to the amphibians, and later the reptiles and birds and mammals, the location never has been changed in any of them. Snakes and chickens and rabbits all have their lungs located below their stomachs. And a most inconvenient arrangement it is! Nature had to devise a system for keeping food on the way to the stomach from falling into the passageway leading to the lungs. Sometimes it fails to work! It would be much more reasonable for nostrils to have a direct passageway to the lungs, and for the mouth to lead only to the stomach.

The fish must have found this buoyant air sac to be a problem in its original location, or perhaps Nature just likes to experiment with fish, but somewhere during the years the time came when its location was changed to a position up near the backbone. This should have been much more convenient in helping the fish to stay right side up.

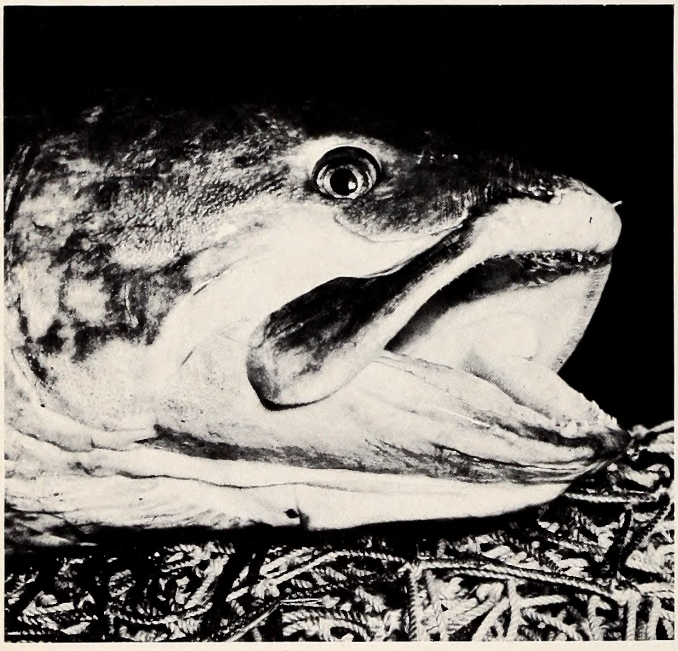
Another change was the discontinuing of the

**In this comparison of air-food systems, described in detail in the text, note the differences in the position of the air-bladder in fish and the location of lungs in the mammal.**



nostril opening. In the Devonian fish, the nostril opened into the throat, and thence to the lung. In modern fish, most of which no longer breathe air directly, the nostril is a closed passageway. Air must be gulped through the mouth. And in the most highly developed of our modern fishes, even the tube from the air-bladder to the throat has been lost. The only way they can change the amount or quality of enclosed air is by means of that supplied by the blood stream.

Even in our fishes of today we find prehistoric hang-overs with the lung of cellular construction, supplied with blood vessels, and entirely functional. Take the gar, for example. He has gills, which seem to be just barely adequate for his needs. In the winter, when he needs the least oxygn and the water holds the most, his gills can supply his needs. In the summer, when the warm water contains less oxygen, he has to come to the surface frequently and gulp fresh air into his lung to increase the supply. The bowfin or grindle is another example, and so is the paddlefish or spoonbill cat. All have a cellular air-bladder—and use it. These are the Ganoid fishes.



**The bowfin or grindle, sort of a "living fossil", can gulp air into its cellular air-bladder to increase the air supply during hot weather when oxygen supplies are limited.**

Most of our present day fishes are Teleosts, or bony fishes. They are divided into two major groups. The older in geological time, and least specialized, is the group characterized by soft rayed fins. This group contains the herrings, the shads, the trouts and salmons, the eels, and the minnows. In this older group, the air-bladder still is connected to the throat with a tube. It is not cellular in structure, though, and does not function as a lung in most species.

In the newest group of fishes, those with spiny-rayed fins, the duct leading to the air-bladder is completely lost and the air sac is sealed off. The perches, the mackerel group, the bass and sunfishes, and the darters—none of them could use the air-bladder for a lung if they wanted to. And since it no longer is needed to serve its original purpose, different fish have made use of it for different things.

Among the minnows, carp, and catfishes, it is used as an amplifier to improve their hearing. A series of bones, derived from the forward vertebrae of the spine, rest with one end on the air-bladder and the other end on the ear capsules. The air-bladder helps pick up sound vibrations and pass them on to the ear.

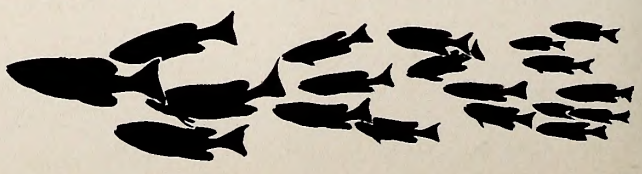
The family which includes the drums and croakers uses the air-bladder for making noises. This has been carefully investigated in the weakfish and the method of drumming determined. A special drumming muscle lies along the wall of the abdomen on either side of the air-bladder. When this muscle is contracted rapidly, the vibrations set up in the air-bladder produce the loud drumming sound which, in the case of the black drum, can be heard through water many feet deep. It is present only in the males in the black drum, the red drum or channel bass, the weakfishes, and the spot, and presumably the sound has something to do with talking to their respective female friends. But someone always has to spoil such things. The female of the croaker has a drumming muscle too, and she can talk back.

The stone-roller minnow makes an unusual use of his air-bladder. Unlike many of the fishes, he is a strict vegetarian, and like all vegetarians he requires a very long intestine to digest his food. In order to keep it neatly arranged, he coils it like a spool of thread around his air-bladder.

Even those fish that have the air-bladder sealed off can use it to some extent for an additional oxygen supply. The gas is a combination of nitrogen, carbon-dioxide, and oxygen. When the fish really needs it, the blood stream will pick up some of the oxygen to keep the fish alive.

And so we have found that the air-bladder is used to help the fish maintain his position in the water, to improve his hearing, to make sounds, for breathing, for a reserve oxygen supply, and as a storage space for his intestine. But some fish didn't care about any of these things and just got rid of it entirely. The flounder, for example, finds it very convenient not to be buoyed up by an air-bladder when he wants to spend his time lying on the bottom. Most fish which have no air-bladders stay on the bottom.

But remember those fish way back in the Devonian time that learned to live in salt water instead of developing an air-bladder? They were the sharks and their relatives. They went to the ocean and never bothered with an air-bladder at all, and they seem to have made out all right without one. It's all very confusing, isn't it? ⬍



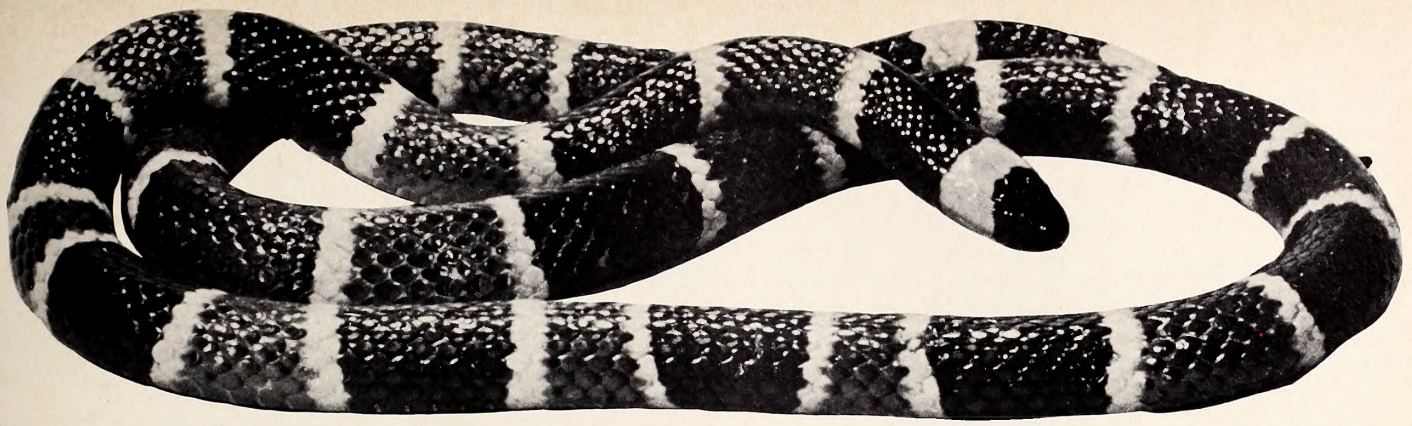


PHOTO BY JOEL ARRINGTON

# The Eastern Coral Snake

by Franklin F. Snelson, Jr.
and
William M. Palmer

ALTHOUGH little known and with its existence in the state doubted or questioned by many persons, the eastern coral snake, *Micrurus fulvius fulvius,* is an established species among the serpent fauna of North Carolina. Even in its preferred habitat it may be relatively uncommon, or certainly so secretive that its presence may remain unnoticed by most human residents.

The species may be identified by the shiny rings of red, yellow, and black, completely encircling the body; the presence of a *black snout;* and *the contact of the red and yellow rings.* The harmless scarlet snake and scarlet kingsnake are often considered to closely resemble the very venomous coral snake. These two harmless forms frequently are found in the same general habitat as the venomous species, but *both have red snouts* and *in both the red and black areas touch.* The underside of the scarlet snake is glossy white in color. Contrary to popular belief the coral snake is not a particularly small species. Specimens have been collected in North Carolina that measured over 30 inches, and individuals exceeding 3 feet have been taken from Florida.

Coral snakes range from North Carolina throughout most of the southern and southwestern states and as far south as Argentina. The eastern species occurs from southeastern North Carolina to eastern Louisiana.

Most species from this state have been collected from areas of pine and scrub oak, in sandy live oak woods, and about the borders of cypress ponds and borrow pits in such areas. Most of the coral snakes in the State museum and for which the time of collection was recorded were found crawling abroad in the very early morning. However, they are accomplished burrowers and probably pass most of the time in a subterranean existence, beneath leaf litter, or under rotting logs and stumps. The distribution in North Carolina is closely correlated with the occurrence of the sandy, pine-oak plant association, and the species has been authentically recorded from Onslow, Pender, New Hanover, Brunswick, Bladen, Scotland, Hoke, and Moore Counties. No doubt it also occurs in contiguous Coastal Plain counties where suitable habitat is present.

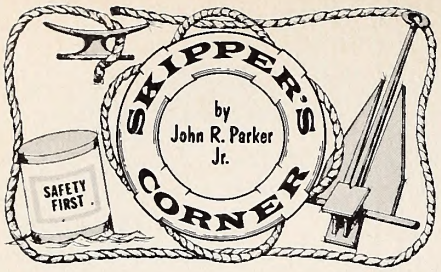
There is very little information presently available concerning the breeding and young of this elusive species in the State. Presumably mating takes place in the spring and possibly up to a dozen eggs are laid in the summer. Hatching probably occurs during the late summer or fall. We have never seen specimens small enough to be hatchlings or possible young of the year.

The food of the coral snake consists almost entirely of small snakes and lizards, but we have been unsuccessful in persuading captive examples to accept food.

Coral snakes are the only major representatives of the family Elapidae found in the New World. This large family is, however, widespread in the Old World with such infamous members as the cobras, mambas, and kraits. The group is characterized by permanently erect fangs, typically with a furrow down the front side of each, and situated in the front of the upper jaw. The venom is composed of extremely virulent neurotoxic elements which rapidly destroy the nervous system.

Fortunately the coral snake is not aggressive and most bites result from persons actually handling specimens. However, when thoroughly agitated a coral snake moves with astonishing speed, wriggling and thrashing about with seemingly spasmodic movements that are not unlike those of a large earthworm when placed on an uncomfortable surface. When restrained with a stick the aroused snake may quickly turn and chew on the offending object expelling small quantities of the toxic venom.

We have seen several reckless collectors handle them in the same manner as if the creatures were kingsnakes or corn snakes. Nevertheless one can never anticipate when a coral snake will turn and bite and it is wise not to handle them at all. In addition, the potential danger from the bite cannot be overestimated, for there are many recorded fatalities from among those persons who have received bites. ◆




IN the several years that yours truly has been at the helm of this column, we have failed to embark upon an extensive treatment of the rules of the road. This, then, is our course. So without my usual rambling side treks, let us cast off.

"Safety First and Keep To The Right." Yes, we have previously suggested the boaters' golden rule. And if you can't remember any other, it is a good one. But there is more. And I shall try to condense some of what is covered in the U. S. Coast Guard publication, CG 169, *Rules Of The Road, International-Inland.*

What are the Rules of The Road? The official title of one set (there are four) answers our first question. CG-169 contains "the International Regulations For Preventing Collisions At Sea" (commonly called the International Rules Of the Road). More relevant to our discussion, "the Inland Rules Of The Road are to be followed by all vessels while navigating upon certain inland waters of the United States." These quotes, taken out of context tell us that first, the rules are intended to prevent collision and secondly, the rules do apply to all of us (legally, on certain waters only). What waters? Since it is Federal law of which we speak, naturally it would be water under U. S. Coast Guard jurisdiction (the navigable waters of the United States).

The above calls for another explanation, certainly. We have attempted an explanation of navigable waters before. Again, those waters of North Carolina considered navigable are coastal waters, including sounds, bays, estuaries and certain inland rivers ( up to a point) such as the Cape Fear, Roanoke, etc. Kerr Reservoir and Fontana Reservoir are considered navigable due to the past history, etc., of the Roanoke and Little Tennessee Rivers. In contrast, Lake Norman, on the Catawba River, has been deemed not navigable by the Coast Guard. However, Lake Wylie, lying downstream from Lake Norman, is considered navigable and is patrolled by the Coast Guard.

This next point may seem premature, but it may add significance to our little discussion. There are penalties, up to $500.00 for violating the rules. Also, if you have a collision and lose in a civil suit, well who knows?

What's the authority? The Inland Rules are enacted by the Congress and are on the statute books of these United States. The Rules authorize the Commandant of the U. S. Coast Guard to issue regulations based on same. Of course, it all started back in the early 19th century when leading maritime nations decided they had better have some rules to keep the boat traffic separated. These international conventions gave us what we now know as the International Rules Of The Road. As you would expect, there have been changes.

What about those other rules? As mentioned there are four sets: International, Inland, Great Lake, and Western Rivers. There is variation in the various sets. The latter two mentioned are a little too far from the Old North State for us to get into. The International Rules, however, are important to boaters venturing offshore.

The International and the Inland Rules are covered in CG-169. And at this point, I suggest that if you really want to delve into this subject, you order a copy from the U. S. Government Printing Office in Washington, D. C.

The Inland Rules are the ones with which we are primarily concerned. They apply to those waters *broadly defined* as being inside the three mile limit.

Our next point may come as a surprise. No, the Official Rules Of The Road, for the most part, are not enforceable on waters that are strictly under state jurisdiction. North Carolina, like many other states, has not yet adopted this part of the Federal boating law. This does not mean that you should observe Safety *Last* and Keep To The *Left*. No golden rule, that one.

Many small craft operators observe the rules on all waters. They take pride in knowing what to do next. Others simply dodge through the traffic.

The rules may be applied on "unnavigable" Lake Norman as well as on Bogue Sound. While not suggesting that every operator needs to know CG-169 verbatim, we do strongly urge that each be familiar with the basic data, much of which is presented in the diagrams in this article.

The Rules actually deal with more than just steering to the right. Light requirements (which are enforced by state law), day signals, bells, whistle-horn signals, passing and meeting maneuvers, distress signals, and various rules of good seamanship are included.

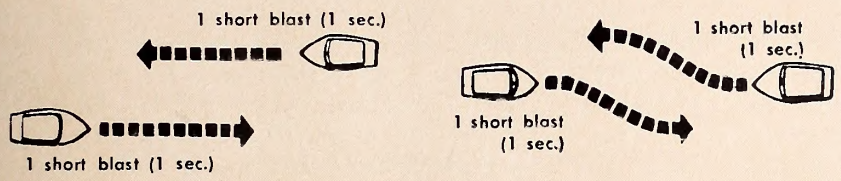
But don't let all of this frighten you. The Rules are applied, for the most part, only when the danger of a collision exists. Obviously, there is little reason to go about steering to starboard and blasting the whistle if there is no traffic in your immedaite vicinty. Then when do we use signals and special maneuvers? When does the chance of a colision exist? The most likely time is when vessels are closing and the angle between the two does not change appreciably (head-on would be an extreme example). See Figure 1.

We have mentioned whistle-horn signals (Figure 2). Certain of these are to be used in the maneuvering situations in Figure 1. These signals are important simply because proper usage allows each boater to know what the other intends.

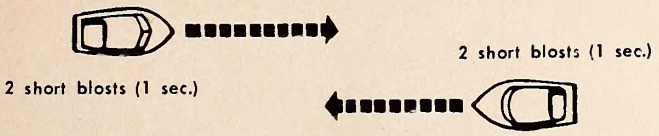
There is a time, a dangerous time, when standard signals may not be used. Obviously if visibility is so restricted that you are not sure what maneuver is next, then your main interest is letting others know you are near. This is a bad time to be out. Slow down or stop and use fog signals.

**INLAND PILOT RULES** **FIG. 1**

***Meeting Head and Head or Nearly so***

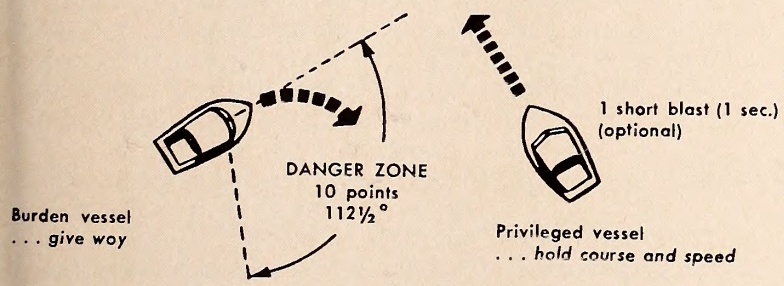



It shall be the duty of each to pass on the port side of the other when meeting head and head on nearly so.

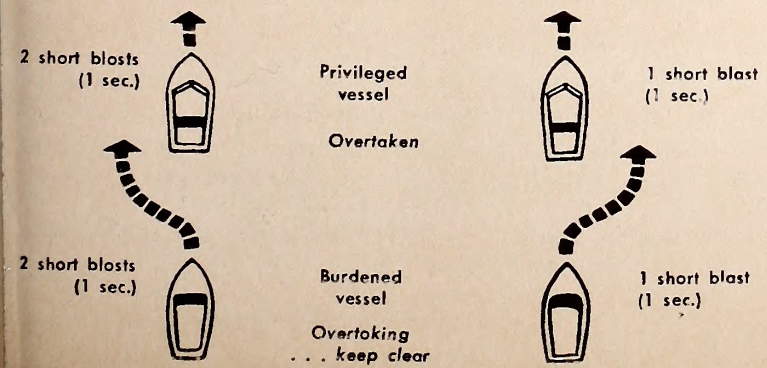



Although it is the duty of vessels meeting head and head or nearly so to pass on the port side of each other, when the courses of such vessels are so far on the starboard of each other as not to be considered a meeting head and head, either vessel shall immediately give two short and distinct blasts of her whistle, which the other shall answer promptly by two similar blasts of her whistle, and they shall pass on the starboard side of each other.

***ossing Situation***




***ertaking Situations***




A number of definitions could be offered. Two are of utmost importance. The *privileged vessel* has the right of way and maintains course and speed. A *burdened vessel* must keep clear of the privileged vessel.

We have yet to mention the sailing fleet. You no doubt know that sailboats have the right of way over power boats. Let us add, except when the sailboat is overtaking the power boat or when a sailboat is running by auxiliary engine alone. It is then treated as a motorboat.

Also a sailboat underway must keep clear of fishing boats (which will probably be motorboats) with lines, nets and trawls out.

And, the right of way between sailboats depends upon how they are sailing in relation to the wind (Figure 3). But remember, no whistle signals between sailboats or sailboats and power boats.

Back to the golden rule for boaters. How did it go? Safety First and Keep To The Right. Especially in narrow channels keep to the right. There we have another basic rule.

All right, you say, I am cruising along the inland waterway in my 18 foot inboard/outboard and meet a 100-foot motor vessel. He won't move over, what next? Two rules are important here. First, boats under 65 feet must yield to larger, less maneuverable vessels in narrow channels. Also the Prudential Rule (Article 27) says "In obeying and construing these rules due regard shall be had to all dangers of navigation and collision, and to any special circumstances to avoid immediate danger." In other words, if a port turn is called for where normally there would be a starboard turn, then go port, mister, go port.

Another rule that deals in generalities but covers some important subject matter is Article 29. Again we quote, "Nothing in these rules shall exonerate any vessel, or the owner or master or crew thereof from the consequence of any neglect to carry lights or signals or of any neglect to keep a proper lookout, or of the neglect of any precaution

| BRIEF SUMMARY OF WHISTLE SIGNALS—INLAND RULES | |
|---|---|
| SIGNAL | MEANING |
| —— 1 second blast | OVERTAKING VESSEL—I desire to pass you on your starboard hand<br>OVERTAKEN VESSEL—(In reply) You may pass on my starboard hand<br>PRIVILEGED VESSEL—(Crossing) I intend to hold my course and speed<br>BURDENED VESSEL—(Crossing) I will give way; your intention is understood<br>VESSELS PASSING PORT-TO-PORT—I will pass you clear to port (both vessels sound) |
| —— —— 1 second each blast | OVERTAKING VESSEL—I desire to pass you on your port hand<br>OVERTAKEN VESSEL—(In reply) You may pass on my port hand<br>VESSELS PASSING STARBOARD-TO-STARBOARD—I will pass you clear to starboard (both vessels sound) |
| —— —— —— 1 second each blast | My engines are backing full speed |
| —— —— —— —— or more 1 second each blast | DANGER SIGNAL—I do not understand or I object or cannot comply; stop and back all engines if necessary |
| —————— 8-10 seconds | BEND WHISTLE—Vessel leaving her slip or ½ mile from a bend in a channel |
| FOG SIGNALS<br>4-6 seconds once each minute —— | STEAM VESSEL UNDERWAY—with way on—"Fog signals must be sounded in fog, mist, falling snow, or heavy rain storms, by day or night, except when vessels are in sight of one another, in which case the appropriate signals for vessels are used." |
| 4-6 seconds twice each minute —— —— | A Steam Vessel underway WITH NO WAY ON (STOPPED) must sound two prolonged blasts every minute. |
| XXXXXX—Bell rung 5 seconds once each minute | VESSEL AT ANCHOR—"When a fog signal is heard apparently forward of the beam, stop engines and navigate with caution." |
| —— — — once a minute | VESSEL TOWING—Use good sense; keep well clear if you can |

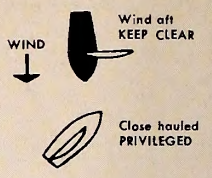
COURTESY U. S. COAST GUARD AUXILIARY

**The chances are that before this boating season is over, you will need some of the information contained in this chart and diagram. Your fun is safer when you know and heed the rules.**

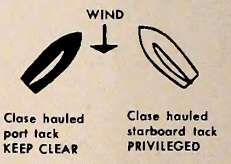
**RULES FOR SAILING VESSELS**
(International and Inland Rules)

Under the Inland Rules, when two sailing vessels are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other as follows, namely:

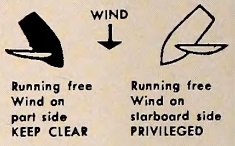
(a) A vessel which is running free shall keep out of the way of a vessel which is close hauled.




(b) A vessel which is close hauled on the port tack shall keep out of the way of a vessel which is close hauled on the starboard tack.




(c) When both are running free, with the wind on different sides, the vessel which has the wind on the port side shall keep out of the way of the other.




(d) When both are running free, with the wind on the same side, the vessel which is to the windward shall keep out of the way of the vessel which is to the leeward.

(e) A vessel which has the wind aft shall keep out of the way of the other vessel.

COURTESY U. S. COAST GUARD

which may be required by the ordinary practice of seamen, or by the special circumstances of the case." Keep a proper lookout. That rule, if obeyed, can really reduce accidents.

Still think there are no boating laws? Well, maybe you knew about these all along. However, as you know, the call occasionally goes out, "There ought to be a law."

But there is more. So before maneuvering along side dock, and bringing this to an end, let us toss out a few more incidental rules of importance.

- There's a rule that says, in so many words, don't go about aiming your spotlight into the cabin of any other craft.
- Boats leaving piers or wharves have no right of way.
- Moderate speed is required in periods of reduced visibility. It has been said that a test of moderate speed is the ability to stop the vessel dead in the water within one half the distance of visibility.
- All vessels are required by the rules to make an efficient sound signal. However, Federal and State laws do not require sound devices on boats of less than 16 feet. Remember the Good Seamanship rules, liability and all that. Should your small craft have a whistle?
- The Rules apply when a boat is underway (which means unless anchored, aground or otherwise made fast to shore).
- Vessels are not permitted to block channels.

In the forementioned, we had a look at a few of the rules, any one of which could prevent a collision. In order to abide by these various rules at night you must be familiar with lights of other craft.

For example, it's helpful to know (to say the least) that the boat in your danger zone will show you (thinking of side lights) her red light. These lights are described in the North Carolina Motor Owners Guide and other marine literature.

We have not discussed maneuvering and signals, but trust that the diagrams will make the basic information clear and leave a better impression than long explanations.

Yes, there are rules to guide boat operators, some really good, time-tested rules. You may not be cited for violations on state waters for one of the Rules, that is, unless the law is changed. However, don't forget that a court decision is often tempered by rules on related subjects, things that are commonly known, etc. State as well as Federal officers can and do cite for reckless and negligent operation more than for actual rules violations. However, it is the violation of one or more of the Rules that leads to negligent or reckless operation charge.

Shouldn't you know and obey the Rules?

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### McClamroch Memorial

Mrs. Roland P. McClamroch, Chapel Hill, initiated the "Dr. Roland P. McClamroch Memorial Fund" with a check for $10,000 to the North Carolina Education Foundation in memory of her late husband. The Foundation is a trust of the N. C. Wildlife Federation, funds from which go to help worthy students in the field of conservation education.

Dr. McClamroch was a life-long conservationist, and was extremely active in state and national Wildlife Federation affairs, and before retirement was a professor of English at the University of North Carolina, Chapel Hill.

### Mountain Trout Season Opens April 6

Regardless of unpredictable spring weather, thousands of Tarheel anglers will be scattered along nearly 2,000 miles of stocked mountain trout streams when the season opens one-half hour before sunrise April 6. In addition to valid state fishing licenses they will need the special trout license costing $1.25 ($3.25 for nonresidents), and on game lands where trout fishing is permitted, a daily trout fishing permit costing $1.65 or a season permit costing $15.25. The $15.25 season permit is valid on game lands anywhere in the state, the $1.65 daily permit is valid only on western game lands. NOTE: NO LICENSES OR PERMITS WILL BE AVAILABLE AT CHECKING STATIONS OR FROM GAME LAND PERSONNEL. THEY MAY BE PURCHASED AT LOCAL AUTHORIZED LICENSE DEALERS.

### Boating Access Area Books Still Available

The Wildlife Resources Commission still has a supply of boating access area books on hand. The books, which sell for 75 cents per copy, include maps showing the exact location of each area, plus description of the fishing, hunting, and other recreational facilities in the vicinity of each area. Write to BAAB, Box 2919, Raleigh, N. C. 27602 and enclose 75 cents.

### Boat Registered? Proper Fishing License?

With the boating and fishing season on hand, be sure your boat is properly registered and numbered (if it has more than ten horsepower), and if you are a fresh water fisherman, be sure your license and/or permit is valid. Boat registration certificates are issued on a calendar year basis as are fishing licenses. If you have an up-to-date combination hunting-fishing license, it is valid through July 31.

# Close-Up on Nature

**Within yards of your backdoor are wonders of which you have never dreamed. But you must look for them. Not all these close-ups are this near, but none is very far away. Observation is one of the keys to understanding, the door-way to appreciation.**

PHOTO BY TOM JACKSON

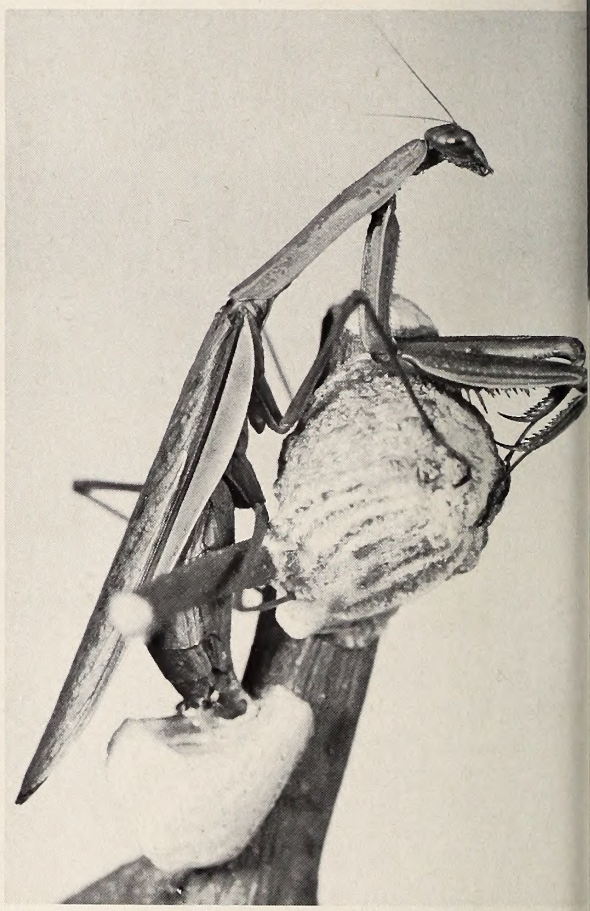
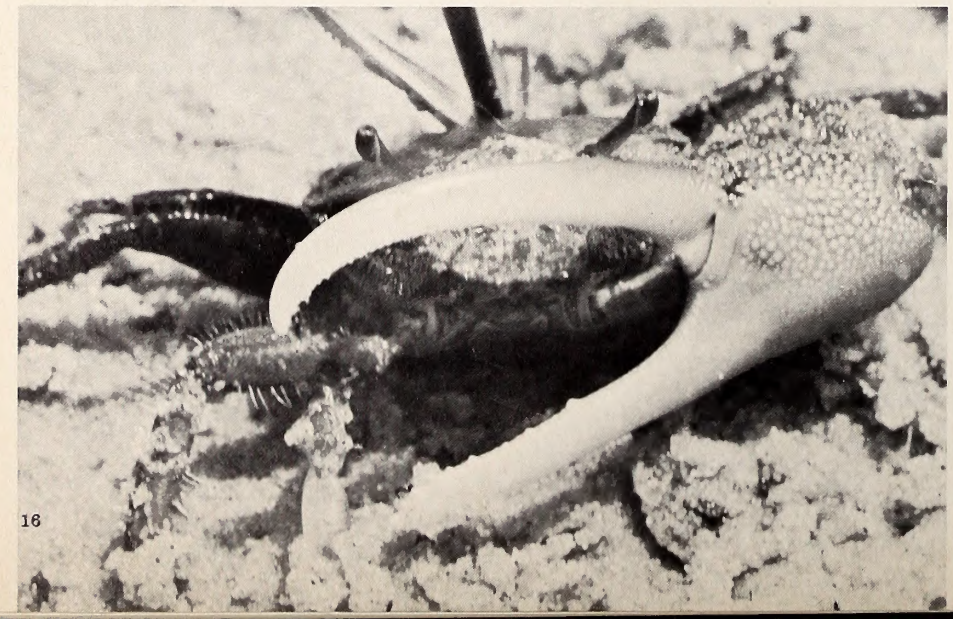
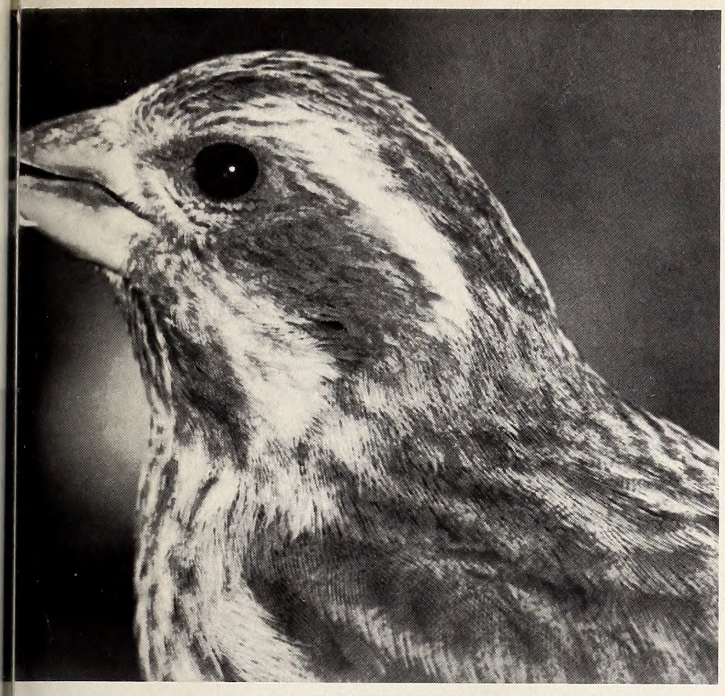


PHOTO COURTESY CAROLINA BIOLOGICAL SUPPLY CO.



The shape and dusky feathers place a bit of doubt on this mallard's ancestry (upper left). The praying mantis (above) is forming an egg case while resting on another. She eventually produced a third case. Left, a tiny fiddler crab waves a fierce pincher in anger.



PHOTOS COURTESY CAROLINA BIOLOGICAL SUPPLY CO.

A female purple finch is caught with a bit of breakfast on her beak. At right, a young fence lizard emerges from its egg. These eggs were found while digging for gold in Randolph County, N. C.

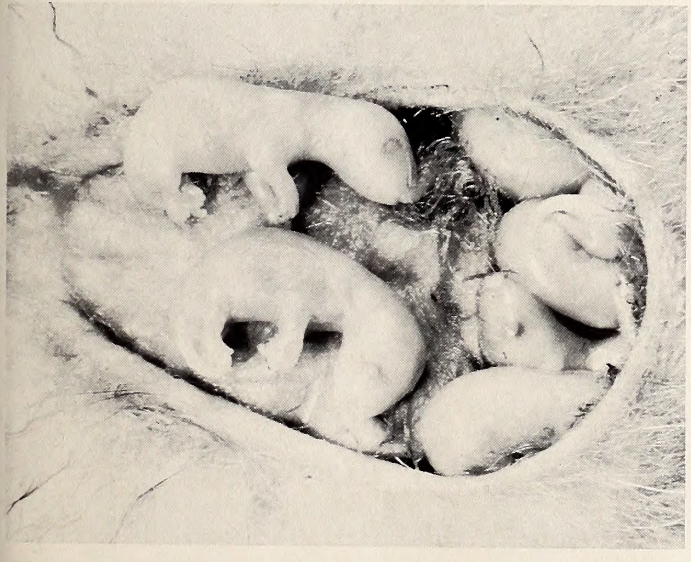
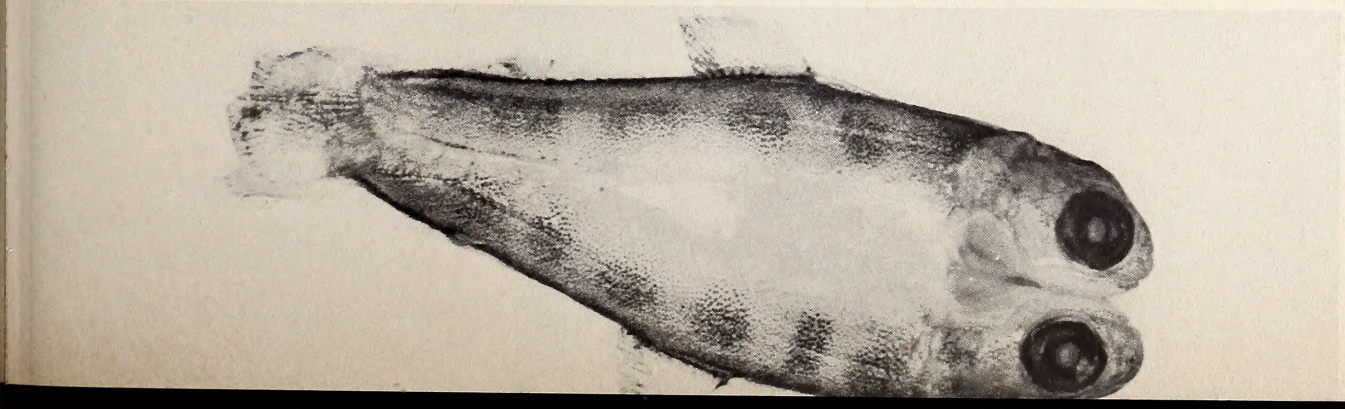


PHOTO BY JOEL ARRINGTON

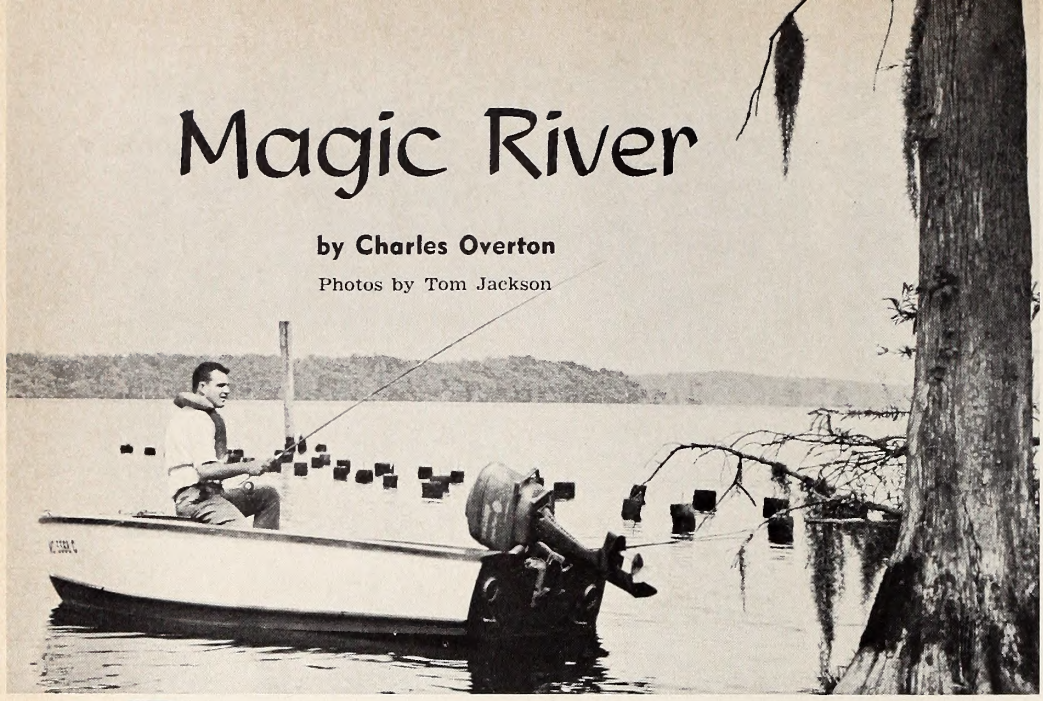
Blind and hairless, these tiny opossums are shown in their mother's marsupium or pouch. They will nurse here for about 12 weeks. Right, a barking tree frog 2½ inches long. Below, Siamese brown trout joined at the abdomen. Although this isn't exceptionally rare in the fish world, few live more than a week.



# Magic River

**by Charles Overton**

Photos by Tom Jackson



THE river, itself, can be mirror slick and as peaceful as a deep sleep. It's a magic river which can catch you in its spell. Drifting down it on a lazy afternoon, you can see it almost as it was hundreds of years ago: the tall dark pines standing silent along its banks, the green tangle of vines and dense undergrowth, the play of light and shadow along the river bank and, always, the infinitely varied patterns of sun and water.

If you listen carefully you may hear the whispered secrets of birds and small animals as you drift. You may hear a squirrel bark, an otter playfully swimming around its burrow or, sometimes, a black bear foraging on the shoreline. Your peace may be broken by the tremendous splash of a bass exploding out of the water after a fly.

This quiet and magic river may surprise you with sudden violence, may tear at you with waves like giant teeth, as a summer thunderstorm slashes in from the far shore. It may rise up in fury. But, somehow, when you think of the river you always remember the quiet afternoons, or the still mornings, and you forget the storms. You remember the peace, the stillness: for this is a magic river. This is the Chowan.

The Nottoway and the Blackwater Rivers, arising in Virginia, join just downstream from the Virginia-North Carolina state line to form the historic Chowan. This river, which is affected by wind tides, flows south for approximately 50 miles until it empties into North Carolina's Albemarle Sound.

## Historic River

During the Civil War many historic events occurred up and down the Chowan. In February, 1862, a group of Union soldiers entered the Chowan, via the Albemarle Sound, and on the morning of the 20th they set fire to Winton, North Carolina. Oddly enough, the Chowan an important key in the destruction of this small town today is a vital part of an aluminum plant located in Winton.

In earlier days, this magnificent river and its tributaries floated supplies and provided food, transportation and income for thousands of families in eastern North Carolina, contributing heavily to the economic growth and development of the state. This development is reflected by the wharf rates that were charged by dock owners along the river. Tons of timber, pitch and supplies were shipped out of North Carolina via the Chowan.

Today, it still contributes its share to the economy of eastern North Carolina: the Chowan supports an important commercial fishery, provides recreation for thousands of eastern North Carolina sportsmen, floats pulpwood to the mill and herring to the processing plant. The Chowan River watershed furnishes excellent farm woodlands, yielding a rich harvest of game for hunters, as well as timber and pulpwood. Good fishing is another by-product of the Chowan's watershed, for the dark streams which lace this country offer excellent "creek fishing."

## Fishing

The streams in this watershed are typical sluggish, black water,

**Bank fishing is popular along the several small creeks just off the main river. This is one of the mills built on a tributary (upper left). Above, the author brings in a scrappy bass. At left the author picks up pottery chips left by Indians of long ago. Ancient camp sites are found at many locations along the Chowan, several with artifacts of various kinds.**

swamp drainage streams of the Coastal Plain Region. Redfin pickerel, warmouth and flier dominate the large fish populations in the smaller streams while the larger streams produce more black crappie, chain pickerel, channel catfish and largemouth bass.

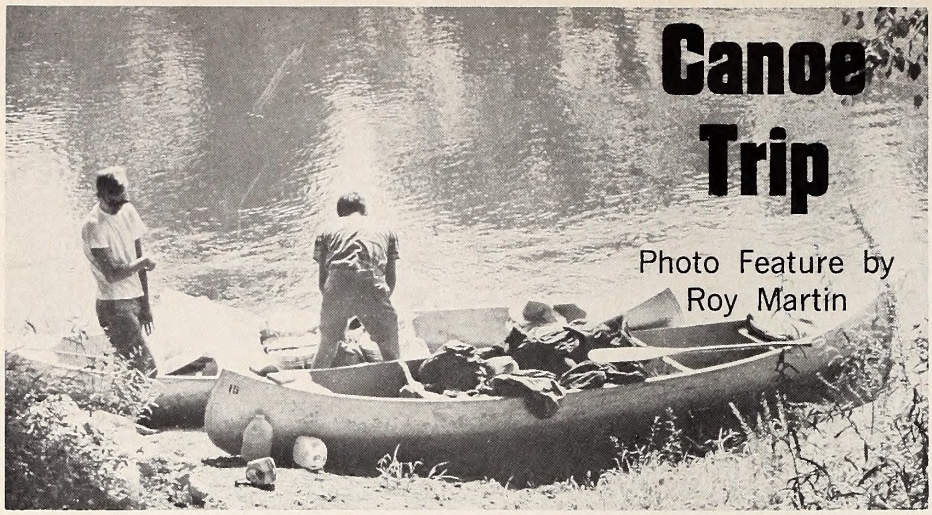
Those anglers who know where and how to fish enjoy excellent fishing year round in these streams. It is difficult to determine when the fishing is best because there are so many different varieties of fishing. Like most rivers, the Chowan has various "hot-spots" that produce at certain times.

In the spring and fall largemouth and striped bass fishing is usually at its best. Lunkers are caught while trolling along the shoreline or creek mouth. When trolling along the shoreline of this river, one should exercise extreme caution to avoid hitting stumps or net stakes that are broken off under the water level. If you are not successful in trolling, fly casting is very popular in the summer months. During this time, large bass are caught around stumps and logs and from the heavy growths of lily pads.

Heavy catches of white perch are often produced from June through August. Many people along the Chowan fish around old net stakes or drift until they find a school. The favorite baits for this species are shrimp and minnows. Occasionally you may catch a large crappie while fishing for white perch.

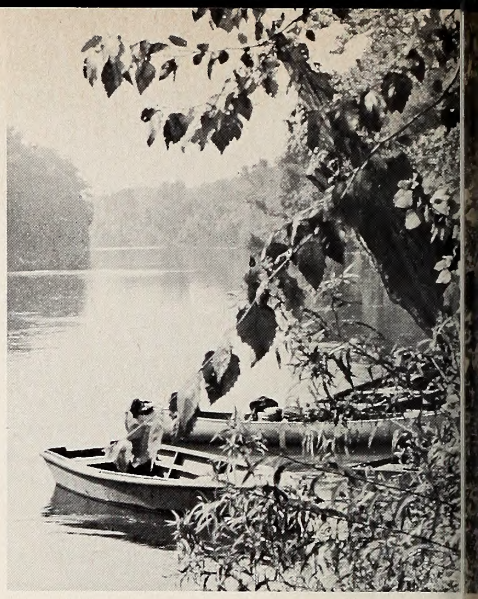
Crappie fishing is usually at its peak from late September through the winter months. Although the same method is generally used for all crappie fishing, this species will move to various locations in the river at different times of the year. Their movements are controlled by the seasonal temperatures. These fish are usually found around hurdles (bush blinds) in the summer months but as the temperature starts dropping they gather in schools and move to deeper water. The best catches at this time of the year are in creek mouths and other deep holes throughout the numerous creeks that feed the Chowan.

Yes, the Chowan is a fine river. A source of food, recreation, wildlife cover, building materials and transportation, the Chowan is, to many people, more than a river. To those of us who know it well and who love it, the Chowan is a way of life. It is a magic river. We hope it stays that way forever!



# Canoe Trip

Photo Feature by
Roy Martin



"HEY, pitch me one of those drinks."

The boy in the canoe was about 10 feet from shore, moving along with the downstream current.

One of his companions, a lanky youth in a slouch hat, picked up a bottled drink from the spring where it had been cooling. He moved down the bank quickly.

"Can you get in a little closer?" he called to his friend in the canoe.

The boy dipped the paddle and with short strokes, turned the craft sideways in the current, and moved slowly for the bank.

"Here comes," said the one in the slouch hat.

The bottle shot across the water, turning, cap up.

The boy in the canoe caught it firmly.

"Thanks," he yelled. "Come on, let's go."

The boy on shore untied another canoe from an overhanging tree trunk. He put one foot on the floor of the canoe and with the other foot, pushed away from the bank, into the river.

It was the muddy, eddying Roanoke.

There were six of them—young adventurers. The trip had begun at Halifax. The destination was Williamston, a distance of 97 miles by the river.

A slight mist hung over the water as the canoes left the Palmyra boat landing for the 22-mile leg to Hamilton.

A blue jay fluttered noisily from the top of a fallen tree as the canoes passed. The bird dipped low over the water, then with skipping-like movements in the air, reached the branches of a water oak across the river and disappeared.

The canoes moved into shore, playing catch in overhanging branches of trees.

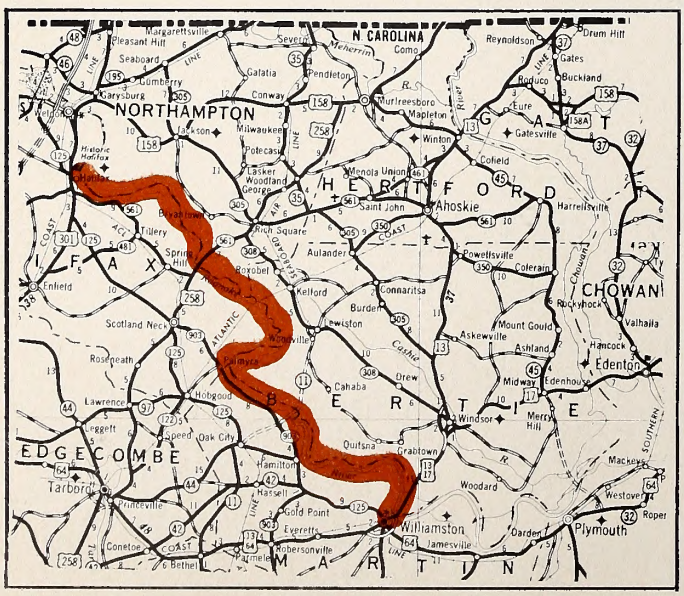
"Snake, Snake!" somebody yelled.

The blotchy water snake was stretched on a nearly submerged log near the bank.

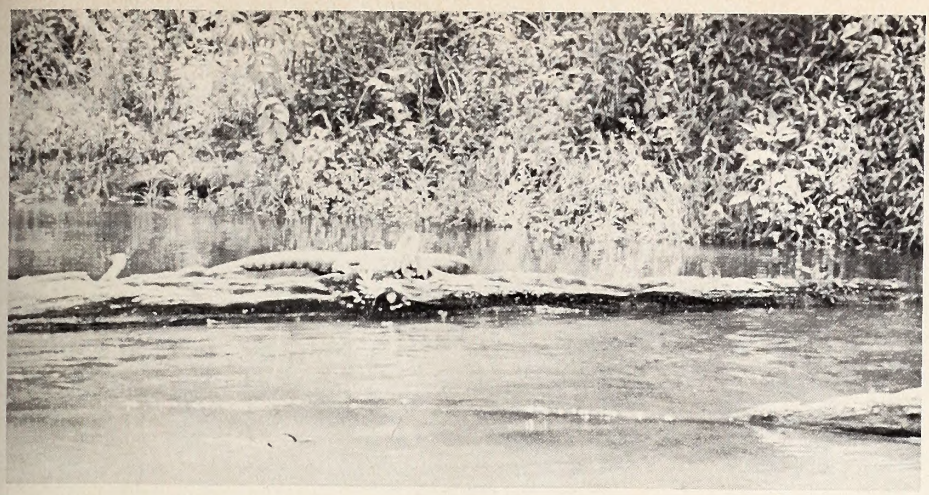
"Looks like an alligator it's so big," said one boy with apprehensive eyes.

One canoe edged up the log slowly.

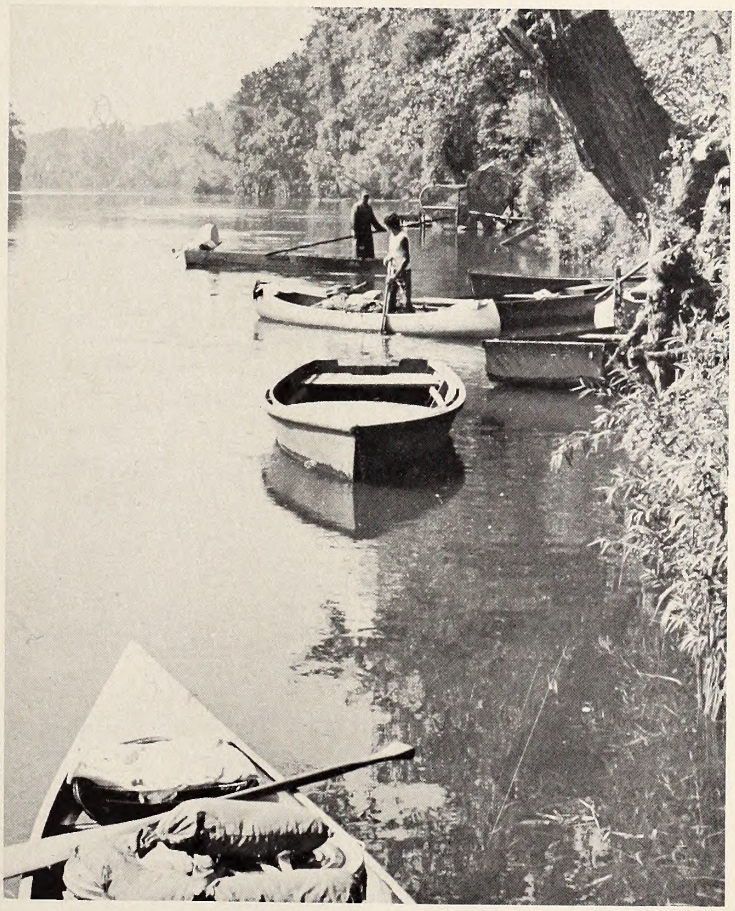
Suddenly, there was a splash and the snake was gone. A ripple lingered.



**This is their route down the winding Roanoke from Halifax to Williamston.**



**The fat water snake looked as big as an alligator as it sunned itself on the driftwood log. It was only one of the many sights and sounds that made up the canoe trip.**



"Back up, back up," said the youngster in the prow of the canoe, back-paddling furiously.

But the snake was gone.

Downriver, they came upon a man and two women on a barge-type affair with tables. They were cleaning fish, slicing and flipping parts overboard.

The woman with ragged apron and weathered face complained about the river:

"Ain't no fish no more," she said, shaking her head and pointing at the water. "Used to be plenty, used to be plenty."

The canoes pulled away, the paddlers waving to the people on the barge.

"Hope you catch a lot," called one boy.

The woman with the ragged apron just shook her head and turned back to the table of fish.

They saw no more people until the Hamilton landing came into sight.

But there were sounds: the crack of a falling limb, the splash of an animal in the water, the shrillness of the logger's chain saw.

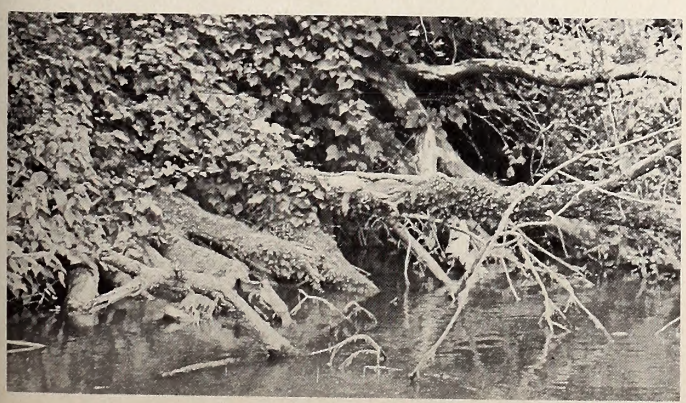
The canoes turned into the Hamilton landing in late afternoon. Fishermen on the bank looked up from their corks at the incoming craft.

One old man with sunglasses jerked at his cane pole, then dropped the cork back into the water.

"Where you come from?" he asked the paddlers.

"Palmyra this morning," said the one in the slouch hat.

"Tough haul, tough haul" said the old man. ◆



# "To Kill a Mockingbird" - 1915

**by Hugh Fields**

IN 1915, it was "unlawful to kill any mockingbird or blue bird at any time" in Edgecombe County, N. C. The penalty was "not more than $50 or imprisonment not exceeding 30 days." Meadow lark season began on November 15 and ended March 1. It was unlawful to hunt on another's land without permission unless you were hunting foxes with three or more dogs. Dove season opened in Edgecombe on July 15 and ended January 1.

Present-day game laws are sometimes confusing, with their many exceptions, special regulations, and all—but they are simplification itself compared to what the hunter in North Carolina had to put up with a couple of years before the Great War.

The 1915 *Synopsis of the Game Laws of Counties in North Carolina, Under Jurisdiction of the State Audubon Society, So Far As They Apply to the Counties Wherein the State Game Wardens Have Authority for Enforcing the Bird and Game Protective Laws* gives us a look at our game laws of half a century ago.

## Audubon Society

In 1903 the North Carolina General Assembly placed the administration of game laws then on the books in cooperating counties under the administration of the Audubon Society of North Carolina. The Society's objects were, in part: "to promote . . . a better appreciation of the value of the song and insectiverous birds to man and the State; to encourage parents and teachers to give instruction to children on the subject; to stimulate public sentiment against the destruction of wild birds and their eggs; (and) to secure the enactment and enforcement of proper and necessary laws for the protection and preservation of birds and game of the State; . . ."

Thirty-six North Carolina counties were under the Society's jurisdiction in 1915. In the remaining counties the boards of county commissioners had complete control of hunting and fishing laws.

The hunting license situation must have been chaotic. In Audubon Society counties a non-resident license issued by one county was valid in all other Audubon counties. In the remaining counties, the licenses were good only in the county issued. Apparently the game laws and licensing systems of non-Audubon counties were beyond the realm of reason and the *Synopsis*.

In Audubon Society counties only non-North Carolina residents were required to buy licenses. The cost was ten dollars and the clerk of the court handled sales.

Purchase of a license permitted the non-resident to take fifty quail, fifty beach birds or snipe, twelve grouse, or two wild turkeys out of the state in a season.

There is no mention of resident licenses.

There were general game laws that were applicable to all Audubon Society Counties.

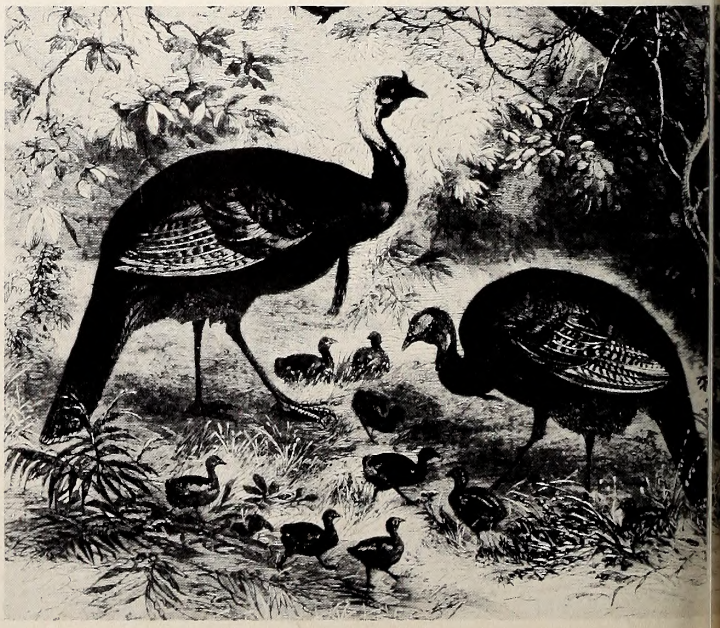
## General Laws

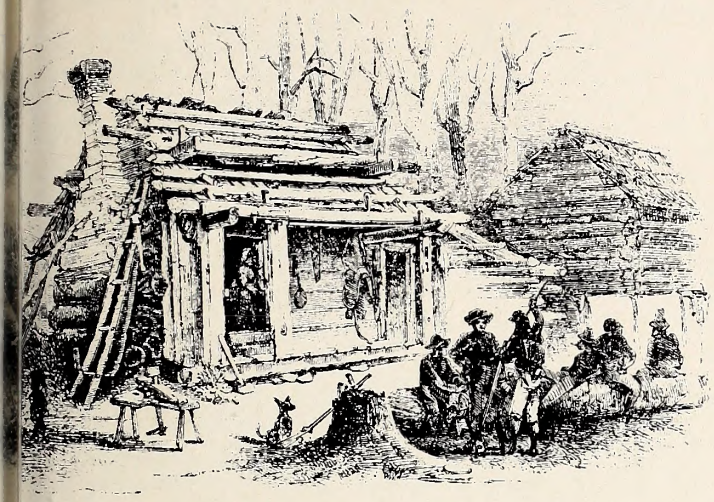
Sunday hunting was prohibited. So was night hunting for any game bird or wild fowl. Sandpipers, yellowlegs, towhees, robins, and meadowlarks were classified as game birds. It was illegal to hunt wild fowl with use of fire.

Hunting deer at night or killing swimming deer was prohibited. Nonresidents were not allowed to hunt, trap or sell the hides of otters, muskrats, or mink.

All 36 counties had a quail season. Watauga County had the longest season, which opened September 1 and closed March 1. Buncombe County had a short season. It opened November 14 and ended January 1. There were 18 different quail seasons among the Audubon counties. Watauga had the earliest open date and Columbus had the latest closing—April 1. Surry County had a three-year closed season beginning February 27, 1915, *"Provided,* any person or persons may kill birds on their own lands or on the lands of another only on his written consent, and sell them within the county." In many counties it was legal for a landowner to sell quail killed on his own land. No mention is

**The purchase of a non-resident license in 1915 entitled the hunter to take a total of 114 game birds from the state, including two wild turkeys, in one season.**





The illustrations accompanying this article were furnished by Louisiana State University Press, Baton Rouge, from their book "Hunting In The Old South" by Clarence Gohdes.

made of bag limits in any county regulations except Mecklenburg, which had a bag of 15 birds a day.

All Audubon counties except Avery had a turkey season. There were 15 different seasons. Fourteen counties had a season of November 1 to March 1. Columbus County had a five-month season: November 1 to April 1. Moore County had a one month season of December 1 to January 1. Bag limits and sex of turkeys are not mentioned.

There was considerable agreement on the open season for doves. Twenty-one counties had seasons beginning November 1 and ending March 1. Most of the remaining counties had more conservative seasons, with the previously mentioned exception of Edgecombe.

Meadow lark and robin seasons were generally similar to dove seasons.

Apparently, 'possum welfare was more important than that of some other game animals. Fifteen counties had closed seasons for opossum (January or February to October), while only four listed waterfowl regulations. Twelve had squirrel seasons and four had rabbit seasons.

McDowell County had a ten-year closed season on deer which began in 1907, and Cumberland County was closed to deer hunting from 1913 to 1918. Thirty-one of the 36 counties had deer seasons, ranging in length from fifteen days to 4½ months.

It was illegal to hunt rabbits with firearms in Durham County. Haywood had a $25.00 tax on out-of-county hunters.

Mecklenburg had a universal closed season—January 1 to December 1—on all game except opossums. 'Possum season was from October 1 to February 1.

In Bladen, it was illegal to kill eagles or destroy their eggs within one mile of White Lake.

Four counties had snipe seasons and six had woodcock seasons. New Hanover's snipe season lasted six months. Brunswick had a five-month woodcock season. New Hanover's and Brunswick's duck seasons started September 1 and ended March 1. Non-resident hunters in these counties could not legally shoot from any blind, sink box, battery, or float not on land at the time.

There was no open season on wood ducks in Guilford.

## Migrating Birds

A recent development, noted in the *Synopsis,* considerably modified some of the county laws relating to insectivorous birds and some migratory game brds. In March 1913, Congress "directed the U. S. Department of Agriculture to adopt suitable regulations prescribing and fixing closed seasons for certain migratory game birds." This act gave the Federal government control over all migratory game and insectivorous birds. The regulations were prepared and were signed by the President. They went into effect October 1, 1913. Meadowlark, robin, towhee or other songbird hunting was no longer legal. A five-year closed season was established for some migratory game birds. Federal open seasons were established for waterfowl, rails, woodcock, snipe and a few others. Doves were not included in the Federal regulations.

So it was in 1915. Many of these regulations seem quaint to us; others appear ridiculous. I wonder what the sportsman of 2015 will think when, as he explores through granddad's stuff in an old trunk, he finds a copy of our "modern" laws. Will he decide to write "To Take or Kill a . . . Bear—1968?" ⬍⬍

# The Biggest Fish

**by Joel Arrington**
Outdoor Editor, Travel and Promotion Division

THE State Travel and Promotion Division is attempting to update marine and fresh water game fish records for North Carolina. As the official record-keeper for the State's game fish catches, the Division requests that it be notified when fish might be a North Carolina record.

Two new records were added to the fresh water list last year. One was the four pound, five ounce bluegill taken from a pond near Edneyville by Danny Case. The other was a 33½ pound landlocked striper which hit A. E. Taunt's "Hot Spot" in Mt. Island Lake last January.

In the salt water category, a 21½ pound bluefish taken from the Kitty Hawk surf by Joe Menzaco is a new North Carolina record for that species and a new world record for 20-pound test line.

Official records are sought for six important game fish not currently listed. These are the shad, channel catfish, flathead catfish, robin and white perch.

Anyone wishing to offer a catch for consideration is advised to write Outdoor Editor, Travel and Promotion Division, N. C. Department of Conservation and Development, Raleigh, N. C. 27602. For verification, the following information is required: Fish species, angler's name and address, fish weight, length, girth, site where caught, bait or lure used, date of catch, photograph and/or name and address of witness. (Not necessarily to catch, but to the fish)

| SPECIES | WEIGHT | LOCATION | LURE OR BAIT | DATE | ANGLER |
|---|---|---|---|---|---|
| Largemouth bass | 14-15 | Santeetlah Lake | L & S Bass Master | 4-26-63 | Leonard Williams |
| Smallmouth bass | 10-2 | Hiwassee Lake | Catalpa worm | June '53 | Archie Lampkin |
| Bluegill | 4-5 | Edneyville pond | spring lizard | 7-27-67 | Danny Case |
| Shellcracker | 4-4 | Lee Co. pond | worm | 2-3-68 | Bill Arnold |
| Chain pickerel | 6-2 | Lake Everett | minnow | Jan. '59 | Dave Goforth |
| Brown trout | 12 | Nathahala River | spinner | ——— | Jim Gaddy |
| Rainbow trout | 10 | Lake Chatuge | Baltimore minnow | 3-20-66 | Frederic P. Warner |
| Crappie | 4-8 | Lake Tillery | ——— | 1960 | Henry Griffin |
| Walleye | 13-4 | Santeetlah Lake | night crawler | May '66 | Leonard Williams |
| White bass | 4-15 | Fontana Lake | Skip Jack | 7-27-66 | Leonard Williams |
| Striped bass (landlocked) | 33-8 | Mt. Island Lake | Hot spot | 1-16-67 | A. E. Taunt |

## North Carolina Marine Game Fish Records

**ALBACORE**—22¼ lbs. in 1965 by Mike Bach off Morehead City.

**AMBERJACK**—120 lbs. in December 1964 by Merrill Lockfaw off Wrightsville Beach.

**BARRACUDA**—44 lbs., 1 oz. on 8-19-57 by Ralph Taylor off Southport.

**BASS, CHANNEL (RED DRUM)**—North Carolina holds a number of International Game Fish Association records for this species:
12-lb. line test record: 60½ lbs. on 10-24-54 by A. Clark, Jr. at Kill Devil Hills.
12-lb. line test record for women: 51½ lbs. on 11-19-58 by Joan S. Dull at Cape Hatteras.
20-lb. line test record: 62 lbs. on 11-3-58 by John Twachtman at Cape Hatteras.
All tackle record for women: 69½ lbs. on 11-16-59 by Jean Browning at Cape Hatteras.
The second largest channel bass ever taken on hook and line was caught by Capt. Bernice Ballance at Hatteras on 11-29-41. This fish weighed 75½ lbs.

**BASS, STRIPED (ROCKFISH)**—53 lbs. on 12-3-65 by Raymond Basnett from surf on Hatteras Island.

**BLUEFISH**—21½ lbs. on 11-7-67 by Joseph J. Menzaco off Kitty Hawk. (World 20-lb. line test record)

**BONITA**—21 lbs. on 7-19-57 by Swift M. Boatwright off Wrightsville Beach.

**COBIA**—97 lbs. on 6-4-52 by Mary W. Black off Oregon Inlet. (World all-tackle record for women)
53 lbs. on 5-29-61 by Dorothy Amos at Morehead City. (World 30-lb. line test record for women)

**CROAKER**—2 lbs., 1 oz. on 5-2-58 by William Moye at Surf City.

**DOLPHIN**—63 lbs. in summer of 1934 by Tom Eaton off Cape Hatteras.

**DRUM, BLACK**—82¼ lbs. on 4-23-55 by C. E. Workman, at Surf City.

**FLOUNDER**—14½ lbs. on 11-14-61 by Dan Holt in Intracoastal Waterway near Carolina Beach.

**MACKEREL, KING**—57 lbs. in October 1966 by Russell Dement at Cape Lookout.

**MACKEREL, SPANISH**—9¾ lbs. on 9-20-63 C. R. Pfaff at Carolina Beach.

**MARLIN, BLUE**—810 lbs. on 6-11-62 by Gary Stukes off Cape Hatteras. (World 130-lb. line test record)
Mr. & Mrs. John Adams & nephew Buddy Adams caught 5 blue marlin from the same boat in the same day in June 1959 out of Morehead City. The largest weighed 366½ lbs.

**MARLIN, WHITE**—106¾ lbs. on 6-6-64 by L. T. Davis off Wrightsville Beach.

**POMPANO**—5 lbs. 9 oz. on 6-18-65 by Alice B. Nelson at Kure Beach and by Dorothy Lipman on 10-19-57 at Fort Fisher.

**SAILFISH**—72½ lbs. on 10-4-47 by Dr. Elliot Motley, Jr.

**SHEEPSHEAD**—12 lbs., 1 oz. by J. Hunter Barden on 8-20-59 at Southport.

**SPOT**—1 lb., 2 oz. on 9-27-55 by Landis Lee at Carolina Beach.

**TARPON**—152 lbs. on 6-1-61 by Bobby Kentrolis at Wrightsville Beach.

**TUNA, BLUEFIN**—491 lbs. on 5-29-63 by Dick Derbyshire off Cape Hatteras.

**TUNA, ATLANTIC BIG-EYED**—195½ lbs. on 6-28-58 by Earl C. Bigger off Oregon Inlet.

**TUNA, YELLOWFIN**—188 lbs. in 1960 by J. R. Tribby off Oregon Inlet.

**WAHOO**—76 lbs. on 7-22-58 by W. N. Gay off Morehead City.

**WEAKFISH, SPOTTED (SPECKLED TROUT)**—9¼ lbs. on 10-25-55 by W. H. Goodman at New Topsail Beach.

**WHITING (VIRGINIA MULLET)**—3 lbs., 1 oz. on 10-24-55 by Milton Warwick at Carolina Beach and by William T. Gulledge on 11-21-59 at Topsail Beach.

**WEAKFISH (GRAY TROUT)**—11¾ lbs. on 10-29-50 by Mrs. L. A. Denning at Newport River. (World all-tackle record for women)
12¼ lbs. on 12-29-61 by John Kenyon, Jr. at Wrightsville Beach.

What Does It Cost To Forget Nature's Domination Of Life?

Second-guessing nature is rapidly becoming a common-place practice in this vast, resource-rich country. It usually happens when someone feels that his 50-some odd years of survival have yielded him more knowledge about life than Mother Nature has learned in millions of years.

Man forgets that he is as much a part of nature as a tree, a deer or a fish. When he forgets, it is almost always to his final regret.

THE name of the creek is not important.

It could have been one of the many pebble-washed or occasionally, mud-red rivulets in Alamance County. But it wasn't. In fact this particular creek is not even in North Carolina.

But that doesn't matter.

What happened to this creek does matter, and although the loss of one creek is not likely to stir up a rush of conservation-minded appeals, it does serve as a reminder to man that nature's way is born of long experience and not subject to contradiction by upstart humans who wrongly think they can dominate the natural scheme of things.

From where the first cool spring burst forth out of the low side of a hill and flowed icy waters down a rocky flume to meet with the spawn of other springs, Miller Creek was a clear, sparkling delight.

Small boys would climb the hill to the spring to watch the small crawfish and spring lizards silhouetted against the white sand in the bottom of the flowing pool.

Below them, in the valley, the stream stretched lazily and meandered back and forth across the landscape, crossing first one farm and then another. The water warmed, and children waded and fished and sometimes played hooky for a swim.

The farmers' stock watered in the stream's edges, and occasionally families picknicked at scenic spots along its short length. Sometimes, a hunter would walk briskly through the sharp, clear brilliance of autumn along the brushy banks of the creek looking for squirrels.

Although the creek was only seven miles—as the crow flies—it wandered twice that length.

On a highway map, it didn't even rate a thin, un-named blue line. It was insignificant, taken for granted by those who used it. People who lived 10 miles away hardly knew it existed. Even those who lived along its banks had long forgotten who Miller was or why a creek—this creek—had been named after him.

There was no reason not to take the creek for granted. It was just there. Not something to rejoice about. As much a part of life as summer or winter. A permanent fixture.

But Miller Creek had an enemy, a man who knew more about creeks than nature, and one day the bulldozers came.

They raked off the brush, grinding down the blackberry bushes and chasing the rabbits and other small game. An ugly gash of red mud sliced straight through the valley from the bubbling spring to where the stream joined a polluted river.

The stream became a drainage ditch, its function to get rid of run-off, to drain land for more farming, more money.

No more could nature replenish the valley's water table through the slow, meandering movement of the stream.

In summer, the water dried up in the pools and the fish died. The creek bed became a cracked jigsaw puzzle of parched mud.

In the spring thaw, and after any hard rain, the stream became a violent torrent, sucking small trees and brush down to the river, washing out gullies, bridges and roads. Fields eroded seriously. Crops were damaged.

The once-gentle and unchanging flow that breathed life into the valley became a serious threat.

Landowners no longer took the stream for g r a n t e d. They screamed for relief, but the stream was beyond repair, draining the life out of the valley.

All because someone thought he could teach nature, rather than learn from it.

### Good Advice

DEAR SIR:

In *Wildlife in North Carolina* under Resource-O-Gram, your offer of plans for bird feeders, bird houses, and wood duck nesting boxes is gratefully accepted.

The undersigned has spent a large portion of the last 20 years in working and vacationing in the area of Knoxville (with Atomic Energy Comm. Oak Ridge, Asheville and Graham Co. has been deeply impressed with the wildlife program Park and National Forest Service there.

The blue print plans offered will be gratefully accepted. Even before the receipt of them there is one factor that I wish to bring out. In nearly all of the commercial type bird houses the owners fail to provide the natural esesntials to make them workable for the birds. The main fault lies in thickness of the wood for insulation against heat, and the need for ventilation.

The young most often suffocate for that reason. Just think of a hatch of young birds in an aluminum house exposed to the sun most of the day and expect them to survive. Having seen the results of metal or thin plywood boxes a serious stress on publicity in the use of materials and ven-

## KNOW YOUR PROTECTOR

**Admiral G. Howell**

Wildlife Protector Admiral G. Howell, stationed in Wayne County, was born June 5, 1924 at Goldsboro, North Carolina. He is the son of Mrs. Oscar J. Howell, Sr.

Admiral graduated from Pikeville High School and attended North Carolina State University prior to serving in the U. S. Navy during World War II.

On January 1, 1949, Howell was employed by the Wildlife Resources Commission. He has attended all In-service Training Schools for Wildlife Protectors, which began in 1950.

Howell is a Mason, Grange member, Hunting Safety Instructor, and charter member of the Wayne County Wildlife Club. He is married to the former Elizabeth Crawford of Pikeville, North Carolina. They have one son, Griffith age 12. They are members of Salem Methodist Church and reside at Route 5, Goldsboro, North Carolina.

## DIVISION ENFORCEMENT RECORD FOR JAN., 1968

**HUNTING & FISHING**

| | |
|---|---|
| Persons checked | 12,963 |
| Total prosecutions | 293 |
| Total convictions | 271 |
| Total cases not guilty | 10 |
| Total cases nol prossed | 9 |
| Total cases dismissed | 3 |
| Total fines collected | $2,153.00 |
| Total costs collected | $2,579.90 |

**BOATING**

| | |
|---|---|
| Persons checked | 267 |
| Total prosecutions | 39 |
| Total convictions | 38 |
| Total cases not guilty | 0 |
| Total cases nol prossed | 1 |
| Total cases dismissed | 0 |
| Total fines collected | $ 80.00 |
| Total costs collected | $249.79 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

---

tilation should be made for and in behalf of the birds we wish to help and prosper.

I certainly feel that unless material specifications are met and at least minimum ventilation is incorporated, in place of aid for the bird it is a calamity for them.

Should not these factors be heavily publicized? The public should be warned against unworkable bird houses.

Sincerely,

Paul Gasper
Minnetonka, Minnesota

### Next . . .

DEAR SIR:

I was reading in your December 1967, issue of *Wildlife* about a man who caught a 3 lb. 9 oz. crappie. On April 15, 1966, I caught a 3 lb. 15 oz. white crappie here in Winston-Salem. *Sports Afield* magazine gave me 2 certificates. Zebco Co. gave me a rod and reel and also I received fishing line and $50.00 cash. Winston-Salem Journal featured an article on me. I thought you might be interested in this.

Freddie G. Cook
Winston-Salem

### A Rabbit With Two Cottontails???

DEAR SIR:

On Christmas Day, near East Bend, North Carolina, in Yadkin County, a hunting party and myself experienced something most unusual. The hunting party consisted of Ricky Smitherman, Larry Shamel, my son, Steve, and myself. Believe it or not, Larry killed a rabbit with two cottontails, the extra one about one inch above the other. We are wondering if this has happened before in any part of North Carolina or elsewhere.

Sincerely yours,
W. C. Lawson
Tobaccoville

### Give it a Try

DEAR SIR:

I would like to know if anyone is interested in getting rid of mosquitoes. The best way I have found is to grow some gourds, dry them out, cut a hole in them, and put them up on a pole with crossbars for six gourds to start with and watch the purple martin scouts come to check them out. The scouts arrive about the first of February in the south and the last of February to first of March in the north. They return to South America and guide the main flocks north to their homes. All it takes to get rid of the pesky mosquitoes is a little work to grow some gourds. One martin can eat 2000 mosquitoes a day! Just last year I put up six gourds (six is enough to start with) and I was lucky enough to get a pair of martins. Just this pair by themselves did a good job on the mosquitoes. This year I am expecting at least four or five pair, because not only the first pair will return to the same home but the young will too. As each year passes you will want to put up more to supply the young with homes. Anyone who wants some gourd seed would they please send a stamped, self-addressed envelope, I will be more than happy to send each person 10 seed as one vine will produce five to eight gourds depending on the soil and attention given. Plant the seed around the middle of February and no later than the last. Plant them in a rich, moist place and about three inches deep. Keep the weeds out of them and allow only one vine to the hill because they require too much plant food.

Next year put the gourds up before the first of February or as early as possible. Do not cut the holes while the gourds are still green because they will wrinkle up and the shell will not be as strong. The gourds will last about two or three years, before they will start to rot. Replace the whole pole with new gourds.

Don't let anyone shoot at the martins or scare them because they will never forget this and you can just say goodbye to your hard-earned martins.

Good luck!

Lin Webb
356 S. Main St.
Raeford, N. C. 28376

Sorry we're so late in advising of Mr. Webb's offer; maybe you can still get a crop of gourds for next year.—Ed.

### Universal Problems

DEAR SIR:

Through a thoughtful gesture of one of your sportsmen, I am receiving your wonderful monthly. Being an employee of the New York State Conservation Department, I can greatly appreciate the work you are doing through the publication of your magazine.

As a Conservation Officer, I am enlightened to see the support you give your Law Enforcement personnel. Articles relating to laws and the need for good enforcement can only aid the performance of the duties of enforcement people.

The main reason for writing is to remark on an article you had in the November, 1967 issue entitled, "Hazards of Firelighting." Again, dealing with situations and problems outlined in the article myself, I can really be thankful for writings of this nature, which tend to educate the public.

I would like to request permission to use text from the article mentioned to adapt it to situations here in New York. This will be submitted for publication in our "Conservationist." Since the problems facing conservation officers are universal, articles such as this can only better our cause.

Richard S. Banker
Conservation Officer
New York Conservation
Department

PHOTO BY POWELL STUDIOS, GOLDSBORO

Put yourself in this picture, say the Henderson, N. C. Jaycees. These are last year's winners of the Southeastern Regional Crow Shoot: kneeling, Ray Powell, single event winner; Bill Boyer, first place crow calling contest; standing, Louis Maxwell, and Billy Ray, doubles event winners. This year's Crow Shoot is set for April 26 and 27, and promises to be bigger and better, according to Jimmy L. Woodall, Chairman, for the event. In addition to the calling contest and the various classes of shoots, there is always plenty of fun and fellowship when the crow hunters of the several states converge on the Henderson area. Last year's first place winner came in with twenty-five crows and doubles winners racked up forty eight. For details on the Shoot, write Jimmy L. Woodall, 1421 Deer Crossing Court, Henderson, N. C. 27536.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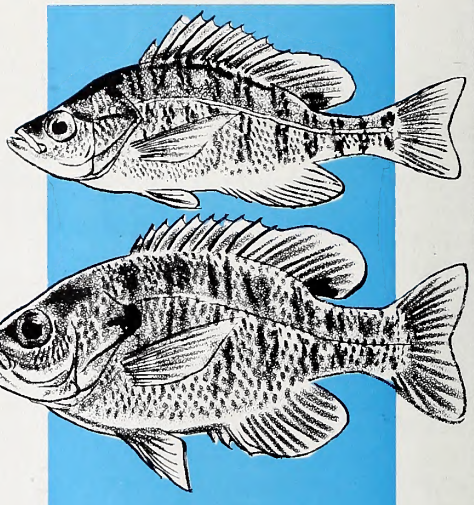
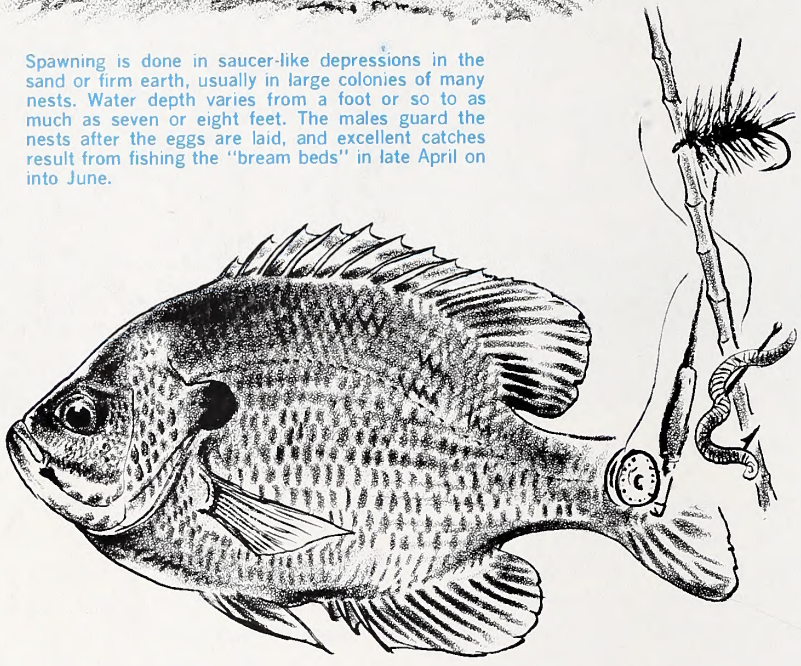
# BLUEGILL

Spawning is done in saucer-like depressions in the sand or firm earth, usually in large colonies of many nests. Water depth varies from a foot or so to as much as seven or eight feet. The males guard the nests after the eggs are laid, and excellent catches result from fishing the "bream beds" in late April on into June.

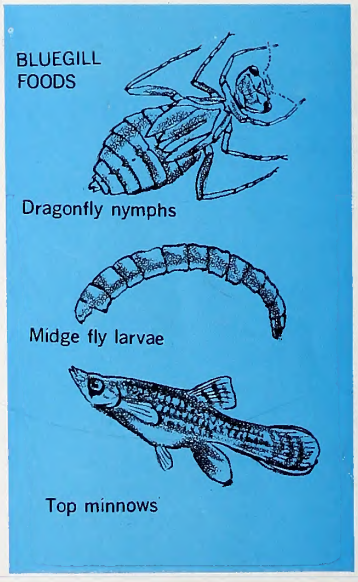


Young bluegills usually have proportionately larger eyes than adult fish, are marked with distinct blue or green bands, and have transparent fins. As the fish grows, the body deepens, color may change, and their entire appearance is different.



Few Tarheel fish furnish more sport than does the bluegill. The fly fisherman and cane pole angler alike, share the harvest. The bluegill is widely distributed and is found in most of our lakes, ponds and rivers. Many in the 20- to 30-ounce class are caught each year.

D. RAVER

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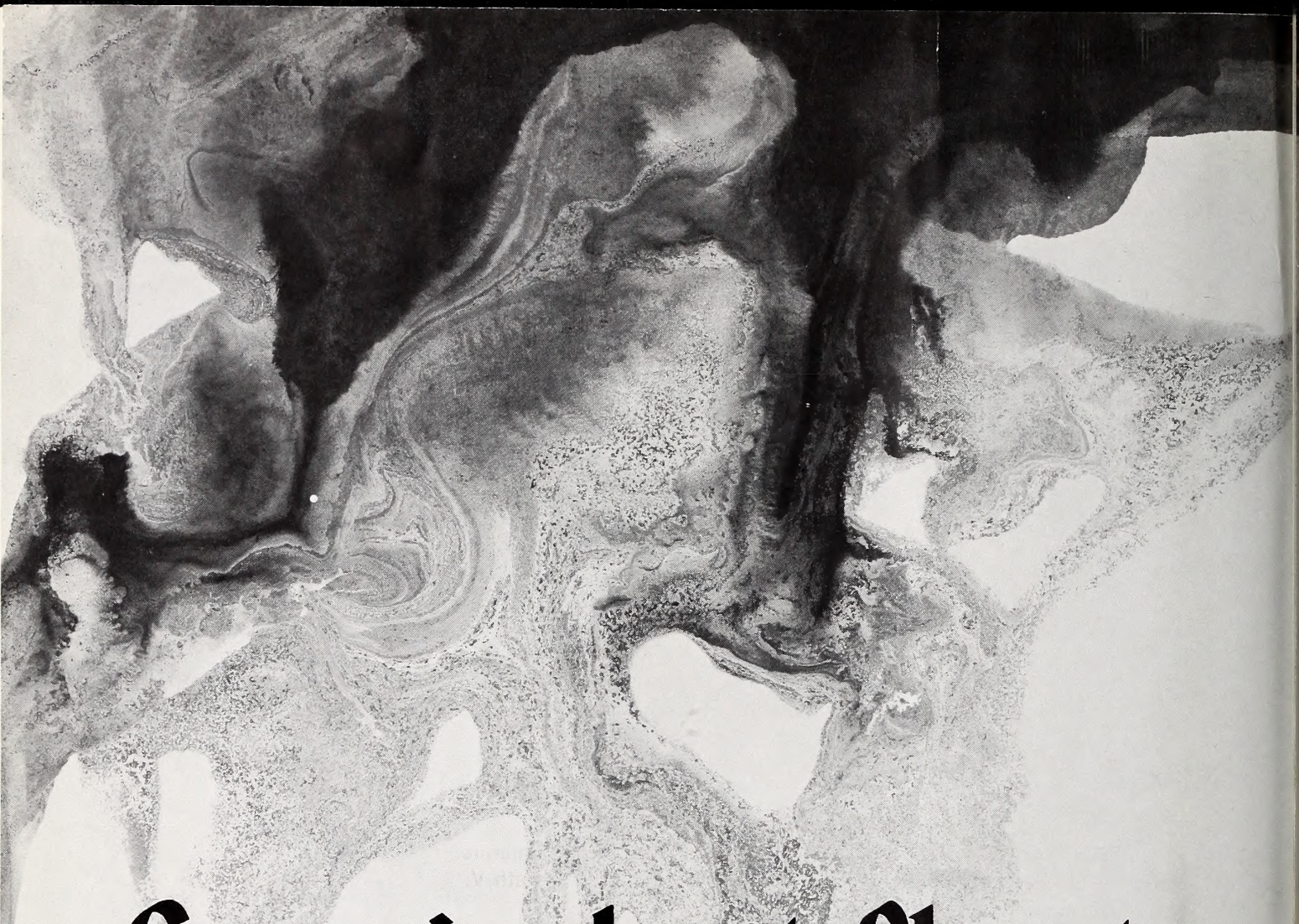

# Genesis-Last Chapter

In the end,
There was Earth, and it was with form and beauty.
And man dwelt upon the lands of the Earth, the meadows and trees, and he said,
"Let us build our dwellings in this place of beauty."
And he built cities and covered the Earth with concrete and steel
And the meadows were gone.
And man said, "It is good."
On the second day, man looked upon the waters of the Earth.
And man said, "Let us put our wastes in the waters
That the dirt will be washed away."
And man did.
And the waters became polluted and foul in their smell.
And man said, "It is good."
On the third day, man looked upon the forests of the Earth
And saw they were beautiful. And man said,
"Let us cut the timber
For our homes and grind the wood for our use."
And man did.
And the lands became barren and the trees were gone.
And man said, "It is good."
On the fourth day man saw that animals were in abundance and ran
In the fields and played in the sun. And man said, "Let us rage these animals for our amusement and kill them for our sport."
And man did. And there were no more animals on the face of the Earth.
And man said, "It is good."
On the fifth day man breathed the air of the Earth. And man said,
"Let us dispose of our wastes into the air for the winds shall blow them away."
And man did. And the air became filled with the smoke and the fumes could not be blown away.
And the air became heavy with dust and choked and burned.
And man said, "It is good."
On the sixth day man saw himself; and seeing the many languages and tongues, he feared and hated.
And man said,
"Let us build great machines and destroy these lest they destroy us."
And man built great machines and the Earth was fired with the rage of great wars.
And man said, "It is good."
On the seventh day man rested from his labors and The Earth was still for
Man no longer dwelt upon the Earth.
And it was good.

(EDITOR'S NOTE: this commentary on the modern world and the way it is going was written by Kenneth Ross for the Idaho Wildlife Review.)

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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VOL. XXXII, NO. 5 MAY, 1968

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EDITORIAL STAFF

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TOM JACKSON _ _ WRITER-PHOTOGRAPHER

Twin fawns aren't unusual, and on good range with adequate food, may be the rule. But from here on, these twins face uncertainty at best. Although their spotted coat and lack of scent will help them escape free-running dogs, the first weeks of life are critical ones. It has been estimated that free-running dogs take over twice as many deer as the hunter. Painting by J. M. Roever.

# SALT WATER RADIOECOLOGY—

A fresh approach for studying the relationships between marine animals, plants, and their environment.

**by Dr. Thomas W. Duke**

Assistant Director, Radiobiological Laboratory

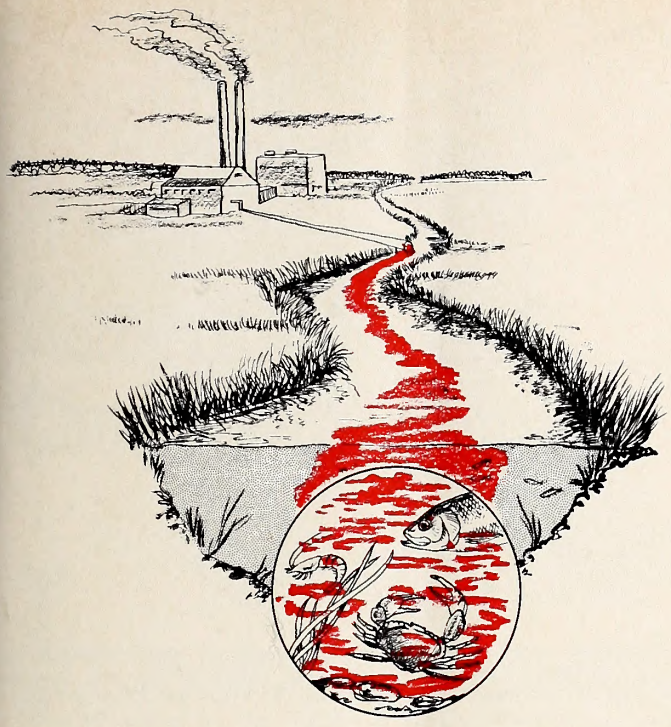
**Here, a simulated marine habitat is checked with a sensitive instrument to determine extent of radioactivity after the addition of radioactive zinc. Both plants and animals are checked.**

RADIOECOLOGY is a relatively new term that describes the study of radioactivity in our environment and the use of radioactive elements in ecological studies. The term is composed of two words —"radio" which here refers to radioactivity and "ecology" which is derived from the Greek *Oikos,* meaning "house" or "place to live." Ecology has been defined as the study of animals and plants "at home" and as "the science of the living environment." Although the term radioecology was coined just recently (in the 1950's) radioactivity has been present in man's environment since the earth was formed and references to principles that were ecological in nature appeared in writings of the early philosophers. The need for this "new" division of ecology, however, was brought about by technological advances of modern man.

Man has added much radioactivity to his environment by exploding nuclear weapons in the atmosphere and by releasing wastes containing radioactive materials into rivers and coastal waters. It was not until 1945 that man-made radioactivity began to appear in the oceans. At this time the world "fallout," that is, radioactive particles that settle to the surface of the earth after nuclear explosions, came into use. About 61 percent of these radioactive materials fall into the ocean in our hemisphere (approximately 61 percent of the earth's surface in the Northern Hemisphere is covered with water) and some of the fallout on land is leached from the soil and carried by rivers to estuaries and the oceans. The major source of radioactivity in the marine environment, however, is from nuclear fuel processing and production plants, and from other industries which discharge wastes into coastal waters or into rivers emptying into the sea. For example, the Hanford Atomic Production Plant in the state of Washington releases radioactivity directly into the Columbia River and much of the radioactivity is carried to the Pacific Ocean 350 miles downstream. These and other radioactive materials released into the marine environment by man are a potential health hazard because the radioactivity can be returned to him through seafood products.

RADIOACTIVE elements act essentially the same as their nonradioactive counterparts when released into the marine environment. For example, radioactive zinc (zinc 65), has been shown to follow the same pathways as stable zinc in the marine environment. Therefore, if radioactive elements are present in sea water, they will be accumulated by organisms living in the sea just as the stable elements are. Organisms become radioactive in different ways: some (plants) accumulate radioactivity directly from water, some (clams and oysters) by feeding on suspended material that contains radioactivity, and some (large fish) by feeding on other animals that are radioactive. Radioactivity thus is passed up the food chain to man through a series of organisms that are eating and being eaten. Although studies of the manner in which radioactivity is accumulated and lost by marine animals and plants is an important aspect of radioecology, another, just as important, is the use of radioactive elements to study the complex relationships that exist among animals, plants, and their environment.

Many new research possibilities have arisen in the field of ecology as radioactive tracers have become available. Instruments that measure radioactivity are now highly sensitive and this advance has made possible the application of radioactive tracers to problems beyond the range of standard



**Much of the radioactive material introduced into our marine habitats comes from nuclear fuel processing and production plants and other industries located on coastal streams.**

methods. For example, marine biologists are often interested in the primary productivity—the amount of carbon fixed by photosynthesis in plants—of a particular area. In many oceanic areas this production is small and difficult to measure. The production of radioactive elements gave us a new, more sensitive method for measurement of primary productivity with radioactive carbon (carbon 14). Radioactive elements have become particularly useful in other studies which include the movement of elements in the environment, food and feeding of marine animals, and tagging of marine organisms and sediments so that their movement can be followed.

Marine scientists at university, state, and federal laboratories in North Carolina are actively participating in radioecological studies. As much (possibly more) of this type of research is in progress in North Carolina as in any part of the country. Scientists working on similar problems in the different institutions exchange information freely so that a spirit of cooperation exists. The research at one of these laboratories and its cooperative arrangement with a state university are described here.

THE Radiobiological Laboratory on Pivers Island, near Beaufort, North Carolina, has a staff of 24 which includes 11 biologists who, under the leadership of Dr. T. R. Rice, Laboratory Director, are engaged in some aspect of radioecological research. This federal laboratory is supported jointly by the Bureau of Commercial Fisheries and the Atomic Energy Commission. The purpose of research at the laboratory is twofold: (1) to determine the fate of radioactive elements that are released into the estuarine environment and the effect of this radioactivity on estuarine plants and animals, and (2) to develop and apply radioisotopic methods to studies of estuarine ecology. As part of this work, the staff has been assigned the responsibility for evaluating the possible radiological effects of the construction and operation of nuclear reactors on fishery resources.

The fate of radioactive elements released into the estuarine environment from nuclear reactors or other sources depends upon the route they take in the estuary. Radioactive materials can remain in solution in the water (much as salt in sea water) or settle to the bottom. Plants and animals may accumulate the radioactive elements either from the water or sediment. If accumulated by seafood organisms, the radioactivity could adversely affect the organisms and also could be passed on to man. Biologists at the Radiobiological Laboratory are studying this accumulation and its effects through experimentation in the laboratory and in the field.

In the laboratory, the staff observes plants and animals in various types of aquaria and ponds filled with radioactive sea water, and measures the simultaneous uptake of radioactivity by a number of different species. Fishes such as the croaker, spot, flounder, sea mullet, and menhaden; crustaceans, such as the shrimp and the blue crab; and molluscs, such as the oyster, clam, and scallop have been exposed to radioactive materials and later checked for their accumulation of radioactivity. The radioactive content of the organisms is determined with specialized electronic equipment—multichannel analyzers. These experiments usually involve placing a plant or animal or communities of organisms in tanks containing sea water with a known amount of the radioactive substance. In some experiments, the water does not contain radioactive elements but the organisms are fed radioactive food.

The results of these experiments have been enlightening. For instance, the accumulation of materials with a "half-life" long enough to reach man (the "half-life" is the amount of time required for a radioactive material to lose one-half of its radioactivity by natural decay) is for the most part confined to the bones, scales, shells, and viscera of fish and shellfish; these parts are not normally eaten. Exceptions, of course, are the clams and oysters, which are eaten with viscera intact, and sardines, which are eaten with both bones and viscera.

Experiments are conducted in the laboratory also to determine the changes that might occur in the body chemistry or bodily shapes of plants and animals subjected to radioactivity. Much of this study has been with the blood of fishes, for it is believed that any radiation-induced physiological changes will occur first in the blood. Other studies are concerned with what might happen to a population of fish exposed to radioactivity. Although the study is not yet complete, the chance seems to be small that fish would be adversely affected from exposure to levels of radiation that would not affect man. The animals used thus far in testing have been found to be resistant to greater levels of exposure

than those man is capable of withstanding.

Most of the experiments described have been studies of animals held in the laboratory, apart from the rest of the marine community. To understand how radioactive materials move through the community, experiments ideally should be conducted in the natural environment, such as a sound or bay. For obvious reasons, however, the natural environment cannot be made radioactive for such a study. To avoid contaminating the environment, experiments are conducted in a very large outdoor pond in which a marine habitat is simulated. A large number of plants and animals have been placed in a 40- by 60-foot salt-water pond walled with concrete and allowed to live much as they would in a shallow estuary. Several kinds of fishes, crabs, and marsh grasses, along with oysters, clams, and snails, have been placed together in water made radioactive by the addition of radioactive zinc. It has been found that sediments, which were usually missing in the laboratory experiments, play a large role in the distribution of this radioactive element.

**In order to monitor the sediment deposits, a "sled" containing radioactivity-detecting equipment is pulled along the ocean or estuary bottoms. The device can be operated by one man.**

RADIOACTIVE elements are used as tracers at the laboratory to study many aspects of estuarine ecology. These tracers are particularly valuable in obtaining answers to some of the problems of food and feeding habits of oysters and clams and determining the best location for oyster beds. Before radioactive elements became available, it was very difficult and time consuming to compare the suitability of different kinds of phytoplankton (minute plants that float in water) as food for oysters and clams. Some of the plants consumed by these animals are used for nutrition and others are quickly discarded without being used. To test the nutritive value of different types of phytoplankton, cells are labeled with radioactive elements and then fed to the oysters and clams. After several hours the animals are dissected and the muscles that control the opening and closing of the shell are removed and analyzed for radiactivity content. If radioactivity from the labelled cells appears in the muscle, the phytoplankton presumably was used for nutrition by the animal.

In the natural environment these animals must have sufficient food and must be located in an area that is not subject to excessive "silting in." Radioactive material that is attached to fine particles of sediment can be used to determine the most favorable location for shellfish beds in respect to the silt. The labeled sediment is released into the water near the area of the proposed bed and is deposited just as natural particles in the water. A sled-like vehicle containing an electronic device that can detect radioactivity is then pulled across the bottom sediment. The appearance of radioactivity in the bottom sediment indicates where the labeled particles settled and thus where silting will take place. Also, the time required for the radioactive particles to reach the bottom indicates the rate at which silting will occur.

Both the Bureau of Commercial Fisheries and the Atomic Energy Commission desire to stimulate the interest of students in marine biology and to contribute to their training; therefore a close affiliation was established between the laboratory and the Zoology Department at North Carolina State University at Raleigh, North Carolina—five staff members of the laboratory have been appointed Adjunct Professors. Several graduate students from the Zoology Department are fulfilling their requirements for research at the Radiobiological Laboratory. One or more of the staff members holding adjunct appointments supervise a student's research and coordinate his activities in cooperation with faculty members on campus. Projects undertaken by students include studies of the role of marsh grass in the dynamics of the esturaine ecosystem, observations on the contribution of "high" and "low" marsh areas to nutrient cycles in the estuary, and investigations of the capacity of clams and shrimp to use decaying marsh grass and other nonliving material for nourishment. This cooperative arrangement between the laboratory and university is of mutual benefit; it increases university teaching facilities, both of staff and technical equipment, and provides information exchange between the laboratory staff and the students and faculty of the university. Also, the arrangement gives students an opportunity to use specialized equipment that is not always available in marine laboratories and to participate in "on-the-job" research training.

The importance of studies in the field of radioecology increases as the levels of radioactivity in our environment increase and as we find additional uses for radioactive elements in ecological research. It is to be hoped that future scientists can concentrate on applying the use of radioactive elements to such tasks as eradicating predators and parasites of fish and shellfish. Whatever the emphasis, much of the research will no doubt take place in North Carolina. ◆

# 1967 Hunt Report— Game Lands with Checking Stations

by Frank Barick
*Chief, Division of Game*

THE hunt report this year is in the form of a comparison of the various types of hunts provided on the game lands with checking stations. It follows the general outline of the game lands regulations and Table I contains which hunts have the greatest number of participants and which are the most productive in terms of total kill and hunter success rate. For an area by area comparison the reader is referred to the detailed annual hunt report available from the Division of Game at Raleigh.

Most of these areas were established primarily for big game restoration and most of the hunting is for big game. Small game hunts are provided as they can be fitted into the hunt calendar. The data clearly indicate that on most of the areas big game hunting is the primary concern of the hunter. The reason for this is the near-universal distribution and availability of small game in all parts of the state whereas in some sections occurrence and availability of big game hunting is largely restricted to the game lands.

While most hunters have an interest in more than one type of hunting, each type of hunting has its special enthusiasts and we feel an obligation to provide hunting opportunity in relation to its level of interest; that is, we try to balance supply with demand. Since there is an element of conflict between various types of hunts they are scheduled on separate dates. The number of scheduled hunting dates has increased substantially over the years and if demand continues to increase more areas will have to be established.

## Bear-Boar Hunts

The ten two-day bear-boar party dog hunts were scheduled only on the Santeetlah area because this is the only area on which both species occur. Due to strongly divided public opinion as to the relative desirability of still hunts versus party dog hunts, one part of the area has been reserved for still hunts and the other for party dog hunts. In 20 days of party dog hunts 408 hunter-days were expended and 38 boars and no bears were taken for an average of 10.8 hunter-days per kill. In 18 days of still hunting 1,092 hunter-days were expended during which nine bears and 27 boars were taken for an average of 30.3 hunter-days per kill. Both participation and kills were higher than the year before.

## Bear Hunts

Forty-five two-day bear party dog hunts were scheduled on six areas. Four of them were not taken. Average participation was only 12 hunter-days per scheduled hunt date as compared with 20 on bear-boar party hunts. In 1,077 hunter-days only eight bears were taken, for an average of 135 hunter-days per kill.

Eight days of bear still hunting were scheduled but only 38 hunter-days were expended and no kills were made. This low level of participation reflects a negligible amount of interest in bear still hunts and raises the question as to whether they should be replaced with other more popular types of hunts.

## Deer-Bear Dog Hunts

The deer-bear dog hunts were restricted to the Holly Shelter and Croatan areas in the eastern part of the state. Four bears and 48 deer were taken in 839 hunter-days for an average of 16.1 hunter-days per kill. This compares very well with the still hunts for buck deer which required an average of 23.2 hunter-days per kill.

## Buck Deer Gun Still Hunts

The buck deer gun still hunts made up 53 percent of all the hunter-days expended on game lands with checking stations. A total of 1,257 antlered bucks was taken in 29,168 hunter-days for an average of 23.2 hunter-days per kill. Both total kill and total participation were higher than last year. Of particular significance were the near record kills on Fires Creek (94), Standing Indian (92) and Sherwood (102) since public concern over the deer populations on these areas prevented scheduling of either sex deer hunts. The kill of 94 deer on Fires Creek was a new high for the area and the kills on the other two areas have been exceeded only a few times in their history.

An important change this year was the ban on taking bears during the gun still hunts for deer on Pisgah and a few other areas where it had been allowed for the past several years. This change was part of our effort to close a loophole in the hunting regulations as discussed in another article in this issue. It is our hope that complete separation of deer hunting from bear and boar hunting in western North Carolina, both on and off the wildlife management areas, will result in much higher deer populations in the vast areas between the management areas. This will reduce the role of our game lands as hunting areas and enhance their primary roles as a source of stock to populate surrounding "open" lands, as has occurred in other sections of the state.

**Comparison of Participation and Hunter Success on Various Types of Hunts on Game Lands with Checking Stations***

| Types of Hunts | | Hunts Available | | Participation | | | Kill | | | Hunter Success | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mgmt. Areas Open | Days of Hunting | Total Hunter-Days | Percent of Total | Average Hunter-Days | Bear | Boar | Deer | Hunter-Days/Kill | Kill Per Hunter Day |
| **Big Game** | | | | | | | | | | | |
| I | Bear-Boar Party Dog | 1 | 20 | 408 | 1 | 20 | 0 | 38 | | 10.8 | |
| | Bear Party Dog | 6 | 90 | 1077 | 2 | 12 | 8 | | | 134.6 | |
| | Deer-Bear Dog | 2 | 23 | 839 | 1 | 17 | 4 | | 48 | 16.1 | |
| II | Archery | 11 | 130 | 4793 | 9 | 37 | 112 | | | 42.8 | |
| III | Bear-Boar Still | 1 | 18 | 1092 | 1 | 61 | 9 | 27 | | 30.3 | |
| | Bear Still | 3 | 8 | 38 | T | 5 | 0 | | | — | |
| IV | Buck Deer Gun Still | 16 | 384 | 29168 | 53 | 76 | | | 1257 | 23.2 | |
| V | Either Sex Deer | 11 | 20 | 4228 | 8 | 211 | | | 548 | 7.7 | |
| VI | Wild Turkey | 4 | 20 | 104 | T | 5 | Turkey-1 | | | 104.0 | |
| | Totals | | 713 | 41747 | 76 | | | | 2051 | | |
| **Small Game** | | | | | | | | | | | |
| VII | Raccoon and Opossum | 10 | 90 | 2178 | 4 | 23 | | 522 | | 4.2 | |
| VIII | Squirrel and Grouse | 13 | 273 | 5574 | 10 | 20 | | 11918 | | — | 2.1 |
| | Dove | 1 | 9 | 2595 | 5 | 288 | | 16194 | | — | 6.2 |
| | Quail | 1 | 27 | 827 | 2 | 31 | | 1112 | | — | 1.3 |
| | Totals | | 399 | 11174 | 21 | | | 29746 | | | |
| **Waterfowl** | | | | | | | | | | | |
| IX | Lake Mattamuskeet | 1 | 55 | 2058 | 4 | 37 | | 1824 | | — | 0.9 |
| | | | | 54979 | 101 | | | | | | |

* Preliminary tabulation, subject to correction in final electronic data process accounting.

## Either Sex Deer Hunts

Due to public concern over deer populations, either sex deer hunts were restricted to one day and omitted on the above-mentined three areas. The total kill of 548 deer in 4,228 hunter-days of either sex hunting provided an unusually favorable average of only 7.7 hunter-days per kill. It is obvious of course that the main reason for this high success rate was the one-day season. It was also a further demonstration that management area deer herds are in good condition.

## Archery Hunts

Archery hunting hit a new high this year in total participation in spite of a drastic drop in use of Sherwood and Standing Indian because of closure to antlerless deer hunting. Largest increases in use were on Uwharrie, Sandhills and Pisgah. Eighty of the 112 deer killed were taken on Uwharrie and 14 each on Daniel Boone and Mt. Mitchell. Overall success rate was 43 hunter-days per kill which is about the best ever. On Uwharrie it was 32 hunter-days per kill which approaches the success rate on some buck gun hunts.

## Wild Turkey Hunts

As of this writing, the 1968 spring turkey gobbler hunt is still a month and a half in the future. During the April '67 hunt only 104 hunter-days were expended in a four-day season at five checking stations and only one turkey was taken. This very low level of participation raises some question as to whether it wouldn't be just as well to close some of these hunts. If, on the other hand the primary deterrent is the four dollar daily fee maybe we ought to consider dropping it to the five dollar season permit.

## Raccoon and Opossum Hunts

Raccoon and opossum hunts were not much different from last year except that we had a few more hunters and a smaller kill which resulted in a poorer success rate—4.2 hunter-days per kill as compared to 3.2 last year. There were 90 days of hunting scheduled, during which 2,178 hunter-days were expended and 516 raccoons and six opossum were taken. It is of interest to note, however, that this is the all time high for level of participation and that this kill was exceeded only once before—last year with 609. Whether it was from less trapping due to the low level of the fur market or to the commission-sportsman cooperative raccoon restoration program, it is clear that western North Carolina raccoon hunters have never had it so good.

# NUMBER OF DEER HUNTERS ON WILDLIFE MANAGEMENT AREAS

| AREA | TYPE OF HUNT | YEARS | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 |
| PISGAH | Bucks with gun | 1,524 | 1,471 | 951 | 3,277 | 4,330 | 4,104 | 5,412 | 4,340 | 5,702 | 6,229 | 8,003 | 6,942 | 7,709 | 5,914 | 6,049 | 6,658 | 5,682 | 5,162 | 6,754 | 6,022 |
| | Either sex | | | | | | | | | | 773 | 722 | 159 | 1,289 | 2,927 | 2,730 | 3,322 | 2,561 | 2,352 | 3,323 | 1,043 |
| | Bow and arrow | 21 | 17 | 23 | | 63 | 83 | 169 | 77 | 87 | 335 | 643 | 730 | 718 | 812 | 467 | 267 | 345 | 386 | 399 | 518 |
| SHERWOOD | Bucks with gun | 273 | 183 | 341 | 678 | 1,030 | 2,121 | 1,588 | 1,379 | 1,462 | 1,410 | 1,622 | 1,618 | 1,942 | 2,388 | 2,297 | 1,849 | 1,627 | 1,985 | 1,992 | 2,206 |
| | Either sex | | | | | | | | | | | | | | | | | 780 | 1,240 | 790 | |
| | Bow and arrow | | | | | | | | | | | | | | | | 123 | 59 | 53 | 81 | 14 |
| MOUNT MITCHELL | Bucks with gun | 97 | 232 | 175 | 539 | 981 | 879 | 1,917 | 1,593 | 1,859 | 2,240 | 2,236 | 2,399 | 2,237 | 2,090 | 2,423 | 2,070 | 1,470 | 1,281 | 1,396 | 1,870 |
| | Either sex | | | | | | | | | | 126 | 285 | 117 | 350 | 1,348 | 1,221 | 2,080 | 964 | 1,124 | 1,186 | 493 |
| | Bow and arrow | | | | | | | | | | | | 453 | 742 | 664 | 526 | 510 | 455 | 608 | 501 | 545 |
| DANIEL BOONE | Bucks with gun | 133 | 411 | 265 | 876 | 1,833 | 1,844 | 2,777 | 2,196 | 2,972 | 3,334 | 3,589 | 4,195 | 4,229 | 3,602 | 4,470 | 5,111 | 3,659 | 2,927 | 3,696 | 3,548 |
| | Either sex | | | | | | | | | | 557 | 931 | 72 | 664 | 2,356 | 2,751 | 2,675 | 2,439 | 1,430 | 2,343 | 827 |
| | Bow and arrow | | | | | | | | | | 235 | 400 | 327 | 546 | 650 | 612 | 611 | 619 | 537 | 738 | 647 |
| STANDING INDIAN | Bucks with gun | | 179 | 147 | 424 | 804 | 677 | 745 | 1,174 | 933 | 867 | 1,079 | 901 | 866 | 1,081 | 1,634 | 1,779 | 1,885 | 1,655 | 1,009 | 1,341 |
| | Either sex | | | | | | | | | | | | | 363 | 617 | 993 | 1,019 | 828 | 683 | 354 | |
| | Bow and arrow | | | | | | | | | | | 181 | 355 | 432 | 322 | 265 | 206 | 182 | 198 | 233 | 45 |
| FIRES CREEK | Bucks with gun | | 86 | 65 | 101 | | 298 | 628 | 313 | 682 | 608 | 799 | 723 | 1,051 | 1,111 | 763 | 981 | 986 | 1,050 | 941 | 1,200 |
| | Either sex | | | | | | | | | | | | | 303 | 416 | 286 | 491 | 383 | 432 | 367 | |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| RICH LAUREL | Bucks with gun | | | 83 | 367 | 420 | 621 | 832 | 412 | 465 | 502 | 511 | 560 | 594 | 607 | 758 | 796 | 447 | 504 | 686 | 695 |
| | Either sex | | | | | | | | | | | | | 96 | 197 | 408 | 235 | 217 | 251 | 489 | 181 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| WAYAH | Bucks with gun | | | 62 | 173 | 309 | 326 | 279 | 236 | 219 | 367 | 375 | 318 | 244 | 281 | 536 | 348 | 656 | 866 | 838 | 754 |
| | Either sex | | | | | | | | | | | | | | | 215 | 203 | 348 | 540 | 454 | 161 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| SANTEETLAH | Bucks with gun | | | | | | 295 | 335 | 314 | 297 | 499 | 640 | 439 | 356 | 444 | 398 | 454 | 548 | 1,155 | 1,685 | 1,027 |
| | Either sex | | | | | | | | | | | | | | | | 40 | 144 | 302 | 256 | 265 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| UWHARRIE | Bucks with gun | | | | | | | 2,199 | 1,712 | 1,723 | 2,050 | 2,034 | 2,168 | 2,356 | 2,445 | 1,672 | 1,516 | 1,600 | 2,164 | 2,426 | 2,270 |
| | Either sex | | | | | | | | | | 241 | 544 | 631 | 521 | 801 | 999 | | | | | 292 |
| | Bow and arrow | | | | | | | | 240 | 395 | 690 | 1,308 | 1,390 | 1,675 | 2,083 | 1,275 | 956 | 723 | 1,182 | 1,913 | 2,574 |
| FLAT TOP | Bucks with gun | | | | | | | | 1,021 | 664 | 508 | 633 | 632 | 813 | 905 | 1,174 | 1,168 | 1,015 | 1,188 | 1,053 | 1,312 |
| | Either sex | | | | | | | | | | | | | | | 315 | 465 | 563 | 891 | 743 | 324 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| THURMOND CHATHAM | Bucks with gun | | | | | | | | | 238 | 322 | 446 | 610 | 989 | 886 | 1,168 | 1,264 | 1,078 | 1,289 | 1,093 | 885 |
| | Either sex | | | | | | | | | | | | | | | 616 | 610 | 715 | 1,590 | 1,116 | 203 |
| | Bow and arrow | | | | | | | | | | | | | | | | 142 | 184 | 177 | 209 | 169 |
| SANDHILLS* | Bucks with gun | | | | | | | | | 845 | 1,155 | 973 | 632 | 675 | 635 | 803 | 702 | 728 | 1,264 | 2,741 | 3,391 |
| | Either sex | | | | | | | | | | | 222 | 1,949 | 1,077 | | | | | | | |
| | Bow and arrow | | | | | | | | | | | | | | | 7 | 75 | 44 | 49 | 50 | 174 |
| HOLLY SHELTER* | Bucks with gun | | | | | | | | | 503 | 407 | 548 | 624 | 484 | 457 | 782 | 1,005 | 929 | 1,040 | 1,136 | 1,419 |
| | Either sex | | | | | | | | | | | | | | | | | | | | |
| | Bow and arrow | | | | | | | | | | 30 | 64 | 29 | 43 | 59 | 10 | 31 | 24 | 48 | 63 | 58 |
| SOUTH MOUNTAINS | Bucks with gun | | | | | | | | | | | 162 | 92 | 215 | 264 | 578 | 683 | | 583 | 938 | 1,058 |
| | Either sex | | | | | | | | | | | | | | | 169 | 247 | 1,865 | 720 | 861 | 290 |
| | Bow and arrow | | | | | | | | | | | 12 | | | | | | | | | |
| HARMON DEN | Bucks with gun | | | | | | | | | | | | 644 | 546 | 434 | 482 | 463 | 304 | 371 | 433 | 663 |
| | Either sex | | | | | | | | | | | | | 98 | 200 | 148 | 141 | 69 | 141 | 289 | 150 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | 2 | 6 | 16 |
| CROATAN* | Bucks with gun | | | | | | | | | | | | | 239 | 203 | 273 | 231 | 181 | 269 | 246 | 353 |
| | Either sex | | | | | | | | | | | | | | | | | | | | |
| | Bow and arrow | | | | | | | | | | | | | | 29 | 29 | 32 | 54 | 66 | 61 | 28 |
| TOTAL BUCKS WITH GUN | | 2,027 | 2,562 | 2,089 | 6,435 | 9,707 | 11,165 | 16,712 | 14,690 | 18,564 | 20,498 | 23,650 | 23,497 | 25,545 | 23,747 | 26,260 | 27,078 | 22,795 | 24,753 | 29,063 | 30,014 |
| TOTAL EITHER SEX | | | | | | | | | | | 1,697 | 2,704 | 2,928 | 4,761 | 8,862 | 10,851 | 11,528 | 11,876 | 11,696 | 12,571 | 4,229 |
| TOTAL BOW AND ARROW | | 21 | 17 | 23 | | 63 | 83 | 169 | 317 | 482 | 1,290 | 2,608 | 3,284 | 4,156 | 4,619 | 3,014 | 2,953 | 2,689 | 3,306 | 4,254 | 4,788 |
| TOTAL NUMBER HUNTERS | | 2,048 | 2,579 | 2,112 | 6,435 | 9,770 | 11,248 | 16,881 | 15,007 | 19,046 | 23,485 | 28,962 | 29,709 | 34,462 | 37,228 | 40,125 | 41,559 | 37,360 | 39,755 | 45,888 | 39,031 |

*Sandhills, Holly Shelter, and Croatan figures expanded May 1967 to include Dog Hunts.

# NUMBER OF DEER KILLED ON WILDLIFE MANAGEMENT AREAS

| AREA | TYPE OF HUNT | ANNUAL DEER HARVEST | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 |
| PISGAH | Bucks with gun | 244 | 139 | 138 | 208 | 346 | 357 | 187 | 199 | 356 | 362 | 339 | 432 | 222 | 189 | 306 | 358 | 159 | 257 | 289 | 226 |
| | Either sex | | | | | | | | | | 53 | 69 | 26 | 164 | 348 | 205 | 367 | 365 | 208 | 281 | 112 |
| | Bow and arrow | 0 | 0 | | 0 | | 0 | 0 | 0 | 0 | 0 | 7 | 10 | 15 | 16 | 2 | 5 | 6 | 5 | 5 | 1 |
| SHERWOOD | Bucks with gun | 40 | 21 | 36 | 35 | 48 | 98 | 49 | 66 | 85 | 68 | 68 | 54 | 112 | 99 | 116 | 94 | 76 | 122 | 89 | 102 |
| | Either sex | | | | | | | | | | | | | | | | | 133 | 69 | 110 | |
| | Bow and arrow | | | | | | | | | | | | | | | | 1 | 1 | 0 | 0 | 0 |
| MT. MITCHELL | Bucks with gun | 31 | 25 | 29 | 39 | 70 | 81 | 81 | 83 | 105 | 136 | 134 | 127 | 85 | 91 | 130 | 96 | 27 | 59 | 66 | 76 |
| | Either sex | | | | | | | | | | 14 | 62 | 22 | 44 | 175 | 123 | 259 | 121 | 85 | 132 | 50 |
| | Bow and arrow | | | | | | | | | | | | 11 | 36 | 14 | 8 | 14 | 13 | 20 | 15 | 14 |
| DANIEL BOONE | Bucks with gun | 36 | 48 | 44 | 54 | 133 | 132 | 75 | 105 | 161 | 190 | 244 | 235 | 115 | 140 | 226 | 230 | 82 | 107 | 157 | 112 |
| | Either sex | | | | | | | | | | 53 | 76 | 8 | 69 | 291 | 243 | 271 | 293 | 103 | 218 | 109 |
| | Bow and arrow | | | | | | | | | | 3 | 4 | 2 | 28 | 28 | 4 | 16 | 21 | 17 | 6 | 14 |
| STANDING INDIAN | Bucks with gun | | 15 | 21 | 24 | 51 | 43 | 17 | 67 | 34 | 68 | 48 | 40 | 45 | 93 | 100 | 117 | 100 | 95 | 26 | 92 |
| | Either sex | | | | | | | | | | | | | 76 | 40 | 127 | 134 | 92 | 43 | 67 | |
| | Bow and arrow | | | | | | | | | | | 2 | 15 | 17 | 11 | 8 | 6 | 5 | 3 | 8 | 0 |
| FIRES CREEK | Bucks with gun | | 13 | 11 | 3 | | 33 | 26 | 12 | 43 | 45 | 54 | 52 | 64 | 86 | 50 | 81 | 65 | 79 | 38 | 94 |
| | Either sex | | | | | | | | | | | | | 72 | 19 | 39 | 83 | 34 | 36 | 58 | |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| RICH LAUREL | Bucks with gun | | | 20 | 22 | 21 | 31 | 36 | 12 | 19 | 36 | 27 | 42 | 16 | 28 | 54 | 47 | 14 | 25 | 32 | 34 |
| | Either sex | | | | | | | | | | | | | 3 | 14 | 24 | 38 | 30 | 25 | 61 | 24 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| WAYAH | Bucks with gun | | | 12 | 8 | 21 | 18 | 8 | 12 | 14 | 28 | 20 | 12 | 13 | 18 | 37 | 20 | 44 | 60 | 42 | 43 |
| | Either sex | | | | | | | | | | | | | | | 27 | 44 | 37 | 54 | 63 | 30 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| SANTEETLAH | Bucks with gun | | | | | | 14 | 7 | 11 | 20 | 28 | 24 | 19 | 6 | 12 | 19 | 21 | 36 | 49 | 41 | 63 |
| | Either sex | | | | | | | | | | | | | | | | 7 | 22 | 23 | 30 | 23 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| UWHARRIE | Bucks with gun | | | | | | | 175 | 88 | 102 | 83 | 89 | 84 | 122 | 92 | 55 | 53 | 67 | 94 | 124 | 82 |
| | Either sex | | | | | | | | | | 55 | 109 | 97 | 145 | 167 | 155 | | | | | 127 |
| | Bow and arrow | | | | | | | | 2 | 2 | 2 | 31 | 22 | 53 | 60 | 18 | 11 | 13 | 25 | 33 | 80 |
| FLAT TOP | Bucks with gun | | | | | | | | 40 | 31 | 25 | 24 | 24 | 39 | 47 | 57 | 66 | 51 | 50 | 48 | 61 |
| | Either sex | | | | | | | | | | | | | | | 33 | 80 | 72 | 43 | 104 | 31 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | |
| THURMOND CHATHAM | Bucks with gun | | | | | | | | | 28 | 16 | 26 | 29 | 33 | 38 | 40 | 36 | 38 | 41 | 36 | 35 |
| | Either sex | | | | | | | | | | | | | | | 36 | 32 | 56 | 71 | 71 | 14 |
| | Bow and arrow | | | | | | | | | | | | | | | | 2 | 5 | 2 | 4 | 3 |
| SANDHILLS* | Bucks with gun | | | | | | | | | 21 | 19 | 25 | 44 | 24 | 16 | 40 | 19 | 26 | 47 | 80 | 90 |
| | Either sex | | | | | | | | | | | 60 | 415 | 132 | | | | | | | |
| | Bow and arrow | | | | | | | | | | | | | | | 0 | 0 | 0 | 1 | 0 | 0 |
| HOLLY SHELTER* | Bucks with gun | | | | | | | | | 25 | 18 | 24 | 29 | 21 | 30 | 54 | 61 | 65 | 58 | 55 | 79 |
| | Either sex | | | | | | | | | | | | | | | | | | | | |
| | Bow and arrow | | | | | | | | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SOUTH MOUNTAINS | Bucks with gun | | | | | | | | | | | 3 | 3 | 1 | 13 | 14 | 24 | | 30 | 43 | 31 |
| | Either sex | | | | | | | | | | | | | | | 15 | 2 | 74 | 25 | 35 | 20 |
| | Bow and arrow | | | | | | | | | | | 0 | | | | | | | | | |
| HARMON DEN | Bucks with gun | | | | | | | | | | | | 37 | 24 | 20 | 21 | 25 | 19 | 22 | 27 | 25 |
| | Either sex | | | | | | | | | | | | | 12 | 20 | 8 | 16 | 1 | 11 | 35 | 10 |
| | Bow and arrow | | | | | | | | | | | | | | | | | | | | 0 |
| CROATAN* | Bucks with gun | | | | | | | | | | | | | 12 | 9 | 13 | 9 | 12 | 16 | 17 | 28 |
| | Either sex | | | | | | | | | | | | | | | | | | | | |
| | Bow and arrow | | | | | | | | | | | | | | 0 | 1 | 2 | 2 | 2 | 1 | 0 |
| TOTAL | Bucks with gun | 351 | 261 | 311 | 393 | 690 | 807 | 661 | 695 | 1,044 | 1,122 | 1,150 | 1,263 | 954 | 1,021 | 1,332 | 1,357 | 881 | 1,211 | 1,210 | 1,273 |
| TOTAL | Either sex | | | | | | | | | | 175 | 376 | 568 | 717 | 1,074 | 1,035 | 1,333 | 1,330 | 796 | 1,265 | 548 |
| TOTAL | Bow and arrow | | | | | | | | 2 | 2 | 5 | 45 | 60 | 149 | 129 | 41 | 57 | 66 | 75 | 72 | 112 |
| TOTAL DEER KILLS | | 351 | 261 | 311 | 393 | 690 | 807 | 661 | 697 | 1,046 | 1,302 | 1,571 | 1,891 | 1,820 | 2,224 | 2,408 | 2,747 | 2,277 | 2,082 | 2,547 | 1,933 |

*Sandhills, Holly Shelter, and Croatan figures expanded May 1967 to include Dog Hunts.

## Small Game Hunts

Small game hunts on western areas are mostly for squirrel and grouse and it was a banner year for squirrel hunting in spite of sporadic kills. With 2,000 fewer hunters and 3,000 more kills, the squirrel hunter success rate at 2.1 squirrels per hunter trip was about double that of last year. Grouse hunting however, was way down, apparently due to heavy early summer rains drowning the young chicks. Only 100 were taken as compared to 285 last year. The drop in number of squirrel hunter-days was probably caused by plenty of good hunting off the management areas.

Quail may be taken on any of the small game hunts but the primary quail hunting wildlife management area is the Sandhills. While it was certainly not a spectacular season it was somewhat better than last year both in number of hunters and total kill. However, hunter success was only 1.3 birds per hunter as compared to 1.5 last year. Number of hunting dates was 27, as last year, during which 827 hunter-days were expended and 1,112 birds killed.

Perhaps the most spectacular of the small game hunts are the Sandhills dove hunts. New highs were established with the taking of 16,194 doves in 2,595 hunter-days for an average of 6.2 birds per hunter-day. During the nine hunting days the average attendance was 288 and on opening day there were 667 hunters. With this level of hunter pressure it appears that more hunting fields should be established in the interest of safety.

## Waterfowl Hunts

The Lake Mattamuskeet waterfowl hunts have dropped another notch in participation and kill, and due to circumstances beyond our control, we cannot see much hope for improvement in the immediate future. Total kill of all waterfowl was only 1,824 as compared with 2,551 last year. Since participation dropped to a low of 2,058 hunter-days, success rate was .89 birds per hunter as compared to .88 last year.

The problem here, as with most other goose and duck hunting areas throughout the south, is that waterfowl are being "short stopped" at recently created refuges and hunting areas to the north. Another reason for the small goose kill appears to have been a poor breeding season, as reflected in the low proportion of juveniles to adults. Consideration is being given to modiifcation of the hunts so as to at least improve success rate even if we cannot improve total kill.

## Summary

In spite of a few rough spots, the season was a good one. Near record total kills were developed on the buck hunts and we experienced the best success rate to date on both the gun and archery either sex deer hunts. Significant advances in regulation were made which augur well for the future of big game populations by separating the deer season from the bear and boar seasons. Bear and boar kills were higher than the previous year and coon hunt participation was at a peak level. Small game hunts (other than grouse) were especially productive. Lake Mattamuskeet waterfowl hunts remained low but plans are afoot to improve success rates.

**As in past years, hunting success varied depending on game sought, area hunted, and several other factors difficult to define and control. The task of improving hunting continues.**

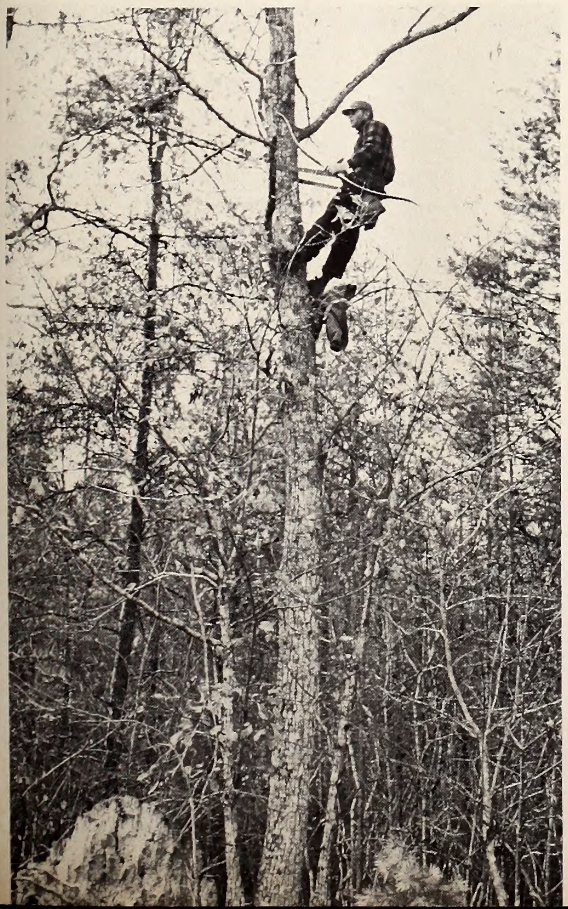
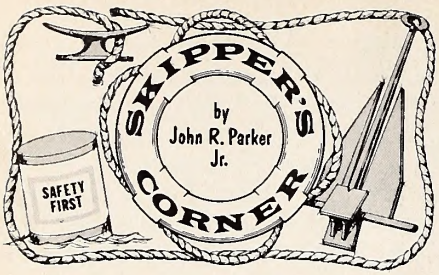


PHOTO BY JOHN PARKER

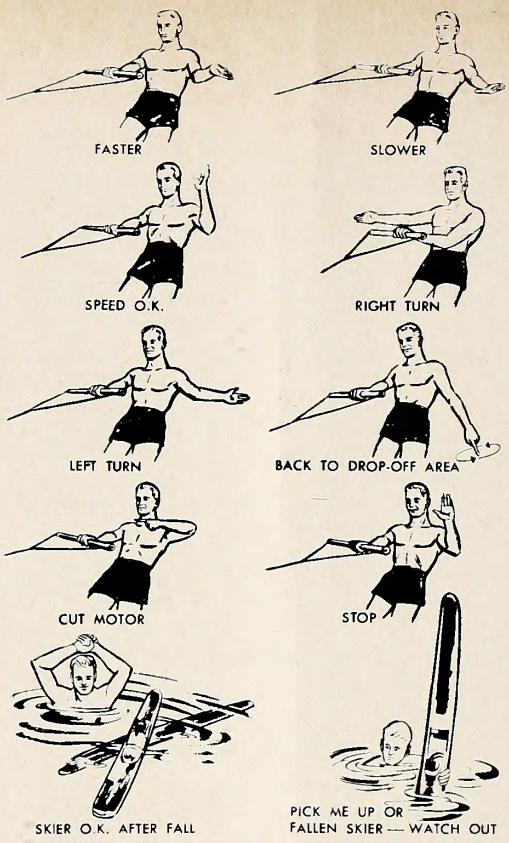



SKIING safety was scheduled for the May issue back when there was ice in the dog pan and many a Tarheel boat was under cover. At that time, I was not real sure of what I would say about it. And I'm still not real sure, here in paragraph one. You see, I don't ski. I have skied and I may ski this summer. At any rate, I would bet a Hatteras Sportsfisherman, if I had one, that I could ski today. I figure it is sort of like riding a bicycle, once you learn how, you don't forget. My form would be anything but tournament, but I'd be skiing.

Water skiing is good sport. To thousands of North Carolinians, that's the understatement of the year. In many parts of the state, it is water skiing that makes a lake "come alive' in early summer. But many fishermen and hammock dwellers probably wish the scene would never reach that point. This is where courtesy and good judgment should prevail and while we could spend a page or two on that, we won't.

We understand that youngsters five and six years of age learn to ski readily and that most adults can learn the fundamentals in an hour or so. The people at Evinrude say that some nine million persons enjoy the sport annually. We don't have any figures for North Carolina, but one authoritative source says skiing is the third major incentive in the nation for boat purchase.

And a classy group of boats from which you have to choose. The offering includes safe, beamy, powerful craft with plush interiors and trim that resembles the automobile more each year. Ski racks, wide view mirrors, ski hitches, boarding ladders, first aid kits, safety vest and speedometer, are standard skiing equipment.




**Whether you are a skier, boat operator, or spectator, skiers' signals are useful and may be essential for safety. Learn them and use them.**

The skis, according to advertisements, are works of science and there are dozens of makes and grades from which to choose. Be sure yours are properly fitted and are free of sharp and protruding surfaces that could cause injury.

The ski boat and even more so the smooth, standard runabout, can be used for other than skiing. While some might dislike having a flopping bass or mackerel foul up the interior, the materials used are quite durable and withstand considerable cleaning. Fishing tackle, an ice chest and perhaps a pair of rod holders and you are safely on your way depending of course, on the particular water, boat type, etc.

What about the other side of the coin? Is the fishing utility boat safe for skiing? Some are. Skiing authoritatives say not to use a boat as a ski boat unless it is equipped with a steering wheel. That sounds like a good rule and we don't discourage its use in the least. The modern utilities with bracket mounted steering and adequate power will do the job in good style.

In a pamphlet distributed by the American Water Ski Association, an average ski boat is described as a 14 footer with a 60" to 70" beam equipped with 25-40 horsepower. This, the pamphlet relates, is a recommended minimum horsepower to pull one skier with two persons in a boat, operator and observer. A safe beam is one thing that should eliminate many of the smaller fishing boats. The weight of the skier may simply cause the less beamy craft to capsize or take on water at the stern.

The ski boat is involved directly in most skiing accidents. So, with that in mind, we would venture to say that the key to skiing safety is the boat driver. An accident involving just the skier is also a reportable boating accident, if the injury is serious.

Skiing accidents make up a small percentage of the annual boating accident total. However, these accidents are not so few as to go unnoticed and a fatality is occasionally the result. The reports that come across this desk usually indicate inattention on the part of the driver, skier or both.

The boat driver must drive for the safety and comfort of the skier and not for his own pleasure. He should know the problem of skiing, know the boat and how to handle it. Smooth acceleration and straight line driving is the general rule. Obviously, turns to avoid accidents or stay in a particular area are needed.

Each ski boat should be "equipped" with an observer. An observer in the boat faces the skier and watches him at all times. This added safety factor can reduce skiing accidents.

The North Carolina Boating Safety Law allows either an observer, a wide view mirror or a safety device on the skier. In the 1967 General Assembly, the Wildlife Resources Commission supported legislation that would have deleted the safety device option. Confusion was the result and the bill failed to pass. Some thought the Commission was against life preservers. This was far from the truth. The skier should wear a device if he desires but it should not replace the observer or the mirror. Think about it—what the skier wears has little to do with safe boat operation.

You don't necessarily need one of the big 100 horsepowered beauties for skiing. Folks once skied behind 10 horsepower rigs but the speed was a little slow. The experts say a good speed for beginners is about 18 mph. As you increase your skill, 22 to 27 mph is good. Of course, if you want to pull that second or third skier the big motors are a must. The point is, just throttle back when a wobbly-kneed novice is trailing 75 feet (the recommended tow line length) behind on a twisted or braided polyethylene or the old twisted manila line.

There are other rules the boat driver should remember. Following too close to other boats or getting his own boat in a position where his skier is being chased are situations to be avoided. Cutting the engine when anyone in the water is near the boat may prevent one of the worst accident types, the propeller slashing. And, of course, don't pull your skier near congested areas, docks, under narrow bridges or in good fishing areas.

This has been anything but a course in skiing. The intent was to point out some of what we feel and what skiing authorities know will keep the ski scene a safe scene. ⬍

## WATER SKIING SAFETY FUNDAMENTALS

**DO**

Learn to water ski by taking instructons from a good water ski instructor.

Know how to swim and wear a flotation device; a ski belt or jacket.

Look ahead and know where you are going at all times.

Stay away from solid objects, such as docks, boats, etc.

Be courteous and stay a reasonable distance from others—such as fishermen, swimmers and boatmen.

Run parallel to shore and come in slowly when landing.

Learn new maneuvers progressively.

Have an extra person in the boat to watch the skier, or use a wide-angle rear view mirror.

If you are all right after a fall, clasp both hands overhead to let the driver know.

Hold up a ski after taking a fall in a well-traveled boating area.

Check your equipment for dangerous, sharp or protruding objects on skis—such as wing nuts, loose runners, slivers, etc.

**DON'T**

Ski in shallow water or where you do not know the depth—minimum safe depth is five feet for adults.

Put any part of body through bridle or wrap rope around any part of body.

Yell "hit it" until rope is tight and tips of skis are up.

Ski to the point of exhaustion.

Ski at night.

Ski directly ahead of another boat —you could fall.

Ski doubles with different length ropes.

Attempt fast landings directly toward shore.

Jump from boat while it is moving.

Climb into boat with motor running or climb into boat from stern.

COURTESY AMERICAN WATER SKI ASSOCIATION

### Courtesy Examination

The Coast Guard Auxiliary offers a valuable service to boatmen with no strings attached, and for the asking on the part of boat owners.

As one of its key programs, qualified Examiners of the Auxiliary will examine, upon request, any privately owned vessel powered by machinery in classes A, 1, 2 and 3—that is, up to 65 feet. There is no charge nor is an adverse report made. The examination includes verifying that the vessel and its equipment meets state law as well as federal law. When other safety equipment is on board above the legal minimum, the coveted "CME" decal may be authorized by the Examiner. This decal, displayed on the boat's windshield or other promnently visible location indicates to other boaters that the vessel meets high standards of safety.

In areas where Coast Guard Boarding Teams operate, vessels displaying a decal for the current year will not be stopped for examination (unless a violation is suspected. Ed.)

Whether a decal is authorized or not, discussion with an Examiner may cause the owner to become more aware of the safer points of boating, as well as his gaining a better understanding of operator responsibility.

In addition to meeting the prescribed legal requirement for the class of boat, for award of a decal, boats should be equipped with anchors, proper and operating lights, fire extinguishers, alternate methods of bailing such as a bailing bucket on smaller boats, covered batteries, sound producing devices, safety flares and fused circuits.

Tanks with a capacity above 7½ gallons should have fueling connections outside the cockpit area with outboard venting. Certain other safety measures may be in order depending on the type of boat.

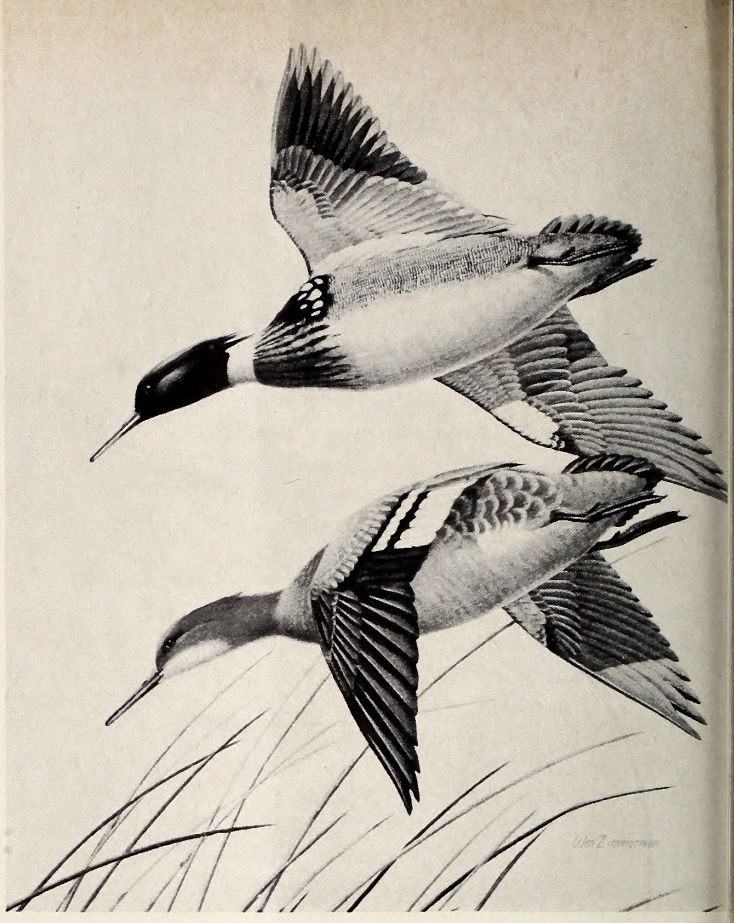
See your nearest Coast Guard Auxiliary Courtesy Motorboat Examiner and welcome him aboard.

**Raymond D. Donnell**
Rear Commodore U.S.C.G.A.

# The Ducks Unlimited Story

**by Kenneth V. McCreary**
Executive Secretary, Ducks Unlimited

***This has been termed by many as a chronicle of success — marking three decades of pioneering achievement in waterfowl conservation.***



**This illustration by William Zimmerman of red-breasted mergansers, was created for Ducks Unlimited in 1965.**

SINCE the dawn of civilization waterfowl have held a unique and wondrous fascination for mankind. Watching flocks of migrating ducks darken the sunrise of a crisp autumn morning; seeing a graceful vee of geese silhouetted high against a yellow Harvest Moon; following a flight of mallards as they wheel and drop into a wind-swept marsh—these are memorable and pulse-quickening moments.

Back at the century's beginning it was a commonplace experience, when the color-splashed days of fall arrived, to see massive numbers of ducks and geese literally blanketing the sky as they winged southward to their traditional wintering grounds, pulled by the mysterious magnet of their migratory instinct.

This breath-taking vision of seemingly endless flocks of waterfowl in flight was a noble heritage graciously endowed upon man by nature—a heritage for him to enjoy, to protect and to hand down as a legacy for the generations to follow. Those who thrilled at the awesome sight of these countless thousands of wildfowl gave little thought to any possibility of the skies ever becoming almost devoid of ducks. It was unbelievable that the glorious tradition of waterfowling could ever be pushed to the brink of becoming just a memory of the bountiful "good old days". Yet, fantastic as the possibility seemed, within a few fleeting years such grim prospects came dangerously close to reality.

Shortly after World War I civilization rapidly sprawled westward across the North American continent, like a huge wave encompassing the prairie areas of both Canada and the U. S. Among sportsmen-conservationists there soon arose a disturbing observation—the vast, sky-darkening flocks of ducks were rapidly disappearing. As the waterfowl populations continued their downward plunge toward oblivion, the concern mounted into full scale alarm—the drastic decline gave rise to dire predictions of the death of our duck hunting heritage.

So it was, in this black hour, that the solid foundation for Ducks Unlimited was carved, in 1929, with the formation of the "More Game Birds In America Foundation". Searching for the answers to the dark problems responsible for the tragic decrease of continental waterfowl populations, the Foundation launched an intensive study, lasting several years. Among the survey's conclusions: (1) over 65% of the continent's waterfowl begin life in the three rich Canadian Prairie Provinces of Alberta, Saskatchewan and Manitoba; (2) the irresistible onslaught of civilization, through draining and cultivation, was steadily ravishing the prime breeding grounds; (3) natural droughts and floods were becoming increasingly critical as a limiting factor in waterfowl production. Finally, the study concluded that *if* the duck and geese populations were to be maintained and restored, then immediate efforts must begin in the gigantic task of rehabilitating and preserving the primary nesting areas of Canada.

## Ducks Unlimited Is Born

To attack this monumental task, a group of far-

sighted American sportsmen banded together to form Ducks Unlimited. It was January 29, 1937, that DU was incorporated in the Nation's Capital as a unique non-profit membership organization, dedicated to the wise conservation of water fowl and the perpetuation of the noble heritage of waterfowling.

The U. S. government, realizing that federal funds could not be spent for conservation in Canada (even though American sportsmen gained primary benefit), granted tax exemption for contributions to DU's ambitious programs of reclaiming and preserving the prime waterfowl breeding grounds. To actually construct the projects, and to handle the many facets of such a gigantic building program, a companion Canadian corporation called Ducks Unlimited (Canada) was formed, under laws of the Dominion.

Needless to say, DU was sternly faced with problems of immense proportion when dirt was turned on its first wetlands project, Manitoba's Big Grass Marsh, in 1938. Even though a serious depression lingered in both the U. S. and Canada, the determined outdoorsmen pulled up their boots and waded in. To the wholehearted support of American sportsmen was added the invaluable cooperation of Canada's Provincial and Dominion governments, plus that of ranchers, landholders, communities and industries, who generously granted long-term land leases on wetland areas.

The result—a program of truly international cooperation in conservation, in a brotherhood that has been unrivaled anywhere. The noble cause of Ducks Unlimited—pioneering in the wise conservation of North America's valuable waterfowl resources—has, from the very beginning, been championed by sportsmen who have made the future of our ducks and geese the concern of all, from the highest government agency to the "one-gallused" hunter.

## 30 Years of Pioneering

Since this extraordinary conservation movement was initiated some three decades ago, Ducks Unlimited has led the way in the perpetuation of waterfowl, utilizing all facilities at its command to restore, preserve and create nesting habitat for ducks and geese. DU has expended over 12-million dollars to plan, build and develop over 800 "duck factories", as its projects are appropriately called by sportsmen and wildlife officials. All told, since work first began in 1938, over 1,000 water control structures such as dams, dikes and levies have been constructed. Today, Ducks Unlimited has, under lease, over one and a half million acres of prime wetland habitat, with total shoreline (a vital ingredient of top quality production) measuring over 8,000 miles.

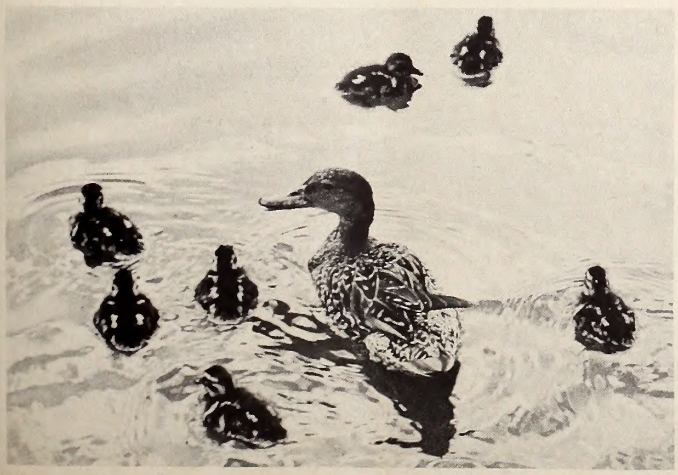
DU's water control projects range from valuable small units of less than 50 acres to huge marshland complexes up to a half-million acres in area. Field surveys are currently underway on one of the largest and most ambitious programs ever tackled —the 512,000-acre Mawdesley Wildlife Development, called the Del-Mar Project, near The Pas in Manitoba.

While the majority of projects are built in the rich Prairie Provinces of Manitoba, Saskatchewan and Alberta, Ducks Unlimited production units stretch across Canada, from the Serpentine River Flats Project in southwest British Columbia to the prime 6,000 acre Delaware State Project at Missaquash Marsh, on the border between Nova Scotia and New Brunswick.

Many of DU's project units have been named to honor conservation leaders while others, financed by sportsmen and DU Committees, bear the names of states, cities and individuals. Across the breadth of the Dominion, these "Donor Lake" projects are readily identified by sturdy commemorative cairns, bearing bronze plaques noting the names of donors.

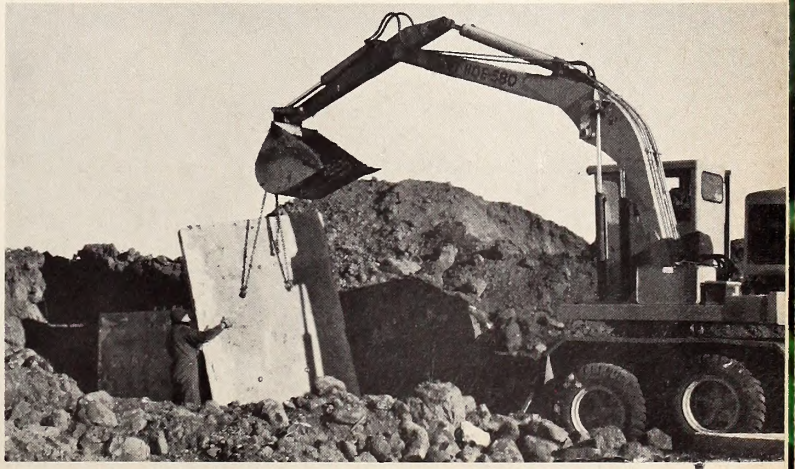
In conjunction with the wide-ranging construction program, hundreds of miles of fencing have been erected to protect nesting areas; many miles of fire lanes are maintained to thwart devastating marsh fires. DU (Canada's) highly trained biologists and engineers regularly inspect projects, evaluating production, supervising planting of aquatic

**This is the key to better waterfowl hunting: more and larger families of ducks and geese. Nesting sites must be provided for them and Ducks Unlimited is doing something about it.**



**The water control structure is being installed on the 450-acre Vernon Project in Alberta. Over 1,000 of these have been established since work first began in 1938.**

PHOTOS BY DUCKS UNLIMITED



food plants, and directing the numerous other tasks essential to insuring top utilization of the areas. Field crews have banded over 140.000 ducks and geese as part of the continuing wildfowl research studies.

Over the thirty years of its progressive achievement, Ducks Unlimited has raised a total of well over $15-million in contributions from concerned sportsmen and organizations in the U. S. and Canada. Needless to say, DU is justly proud of the fact that, since its founding, almost 80¢ of every contributed dollar has gone directly to Canada to be judiciously spent in the never-ending battle to preserve, protect and restore the all-important waterfowl breeding grounds.

## DU and You

The distinguished record compiled by Ducks Unlimited over the years stands as a concrete tribute to the unselfish efforts of the devoted sportsmen-conservationsts who, in reality, *are* DU. Among its Officers and Trustees, now and over past years, are leaders in business, industry, the professions and, most of all, conservation. While serving without compensation, their full satisfaction comes in the vital role they play in preserving our precious waterfowl inheritance. Approximately 35,000 persons are members of DU, yet millions enjoy the benefits of this valuable natural resource. Every hunter who treasures his sport, and every person who shares the thrills of watching waterfowl, owes a real vote of gratitude to those who have borne the responsibilities of helping perpetuate the continent's ducks and geese.

A look at DU's outstanding chronicle of conservation achievement makes it easy to understand the great pride each Ducks Unlimited member takes in his association. This progressive record is most certainly deserving of full support from every duck-hunter.

DU has clearly illustrated, by example, that the rehabilitation of prime nesting grounds across Canada is a vital factor in the preservation of our waterfowl—and in the process has achieved the equally important goal of instilling a solid awareness among citizens and government agencies alike (on both sides of the border) of the urgent need for wise conservation programs.

## Facing the Future

With the return of abundant water to the primary breeding regions, Ducks Unlimited is faced with a highly unusual opportunity and challenge. Forging ahead with an aggressive "master plan" of project construction *now* will enable us to provide and protect much valuable habitat from future floods and drought.

The funds which are so necessary to accomplish this long-range goal must be raised, in large part, here in the United States, where sportsmen realize almost 75% of the continental waterfowl harvest. American outdoorsmen are not prone to sidestep their responsibilities in matters involving conservation, as witnessed by longtime support of DU and other worthy programs designed to protect natural resources. Several states have passed legislation setting aside a portion of hunting license fees for waterfowl conservation and, noting DU's fine record for making every donated dollar count, have granted these funds to Ducks Unlimited. There is bright optimism that several other states may soon follow in the progressive footsteps of such states as Louisiana, Ohio, North Carolina and South Carolina. There is also confidence that the waterfowlers of the U. S. and Canada will continue to recognize the critical need for their support of Ducks Unlimited's ever expanding efforts.

Through generous contributions of time, service and money to their local and State Committees, DU members are doing their part in enlarging their own memorable enjoyment of a day in their favorite marsh, while at the same time aiding the preservation of our priceless waterfowl heritage for their sons and grandsons to follow. The wise conservation of our waterfowl is the responsibility and obligation of all who thrill to the sight and sound of these noble creatures.

*"Assisting nature to aid the birds to multiply must be the first consideration of all of us."*

This significant quotation truly exemplifies the goals and purposes of Ducks Unlimited, in the past, the present and in years to come. With a helping hand from you and other sportsmen-conservationists, so will the noble and remarkable accomplishments of Ducks Unlimited continue into the unlimited future. ⬍

If you would like to help Ducks Unlimited, please send your contributions to Senator Herman A. Moore, P. O. Box 2665, Charlotte, N. C. 28201. Senator Moore is State Chairman for DU.

PHOTO BY JACK DERMID

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Public To Be Heard On Hunting Regulation Proposals

In keeping with long-established practice, the Wildlife Resources Commission has scheduled a series of public hearings during May to give Tarheel sportsmen a voice in setting the 1968-1969 hunting regulations for nonmigratory game species.

Regulations for migratory game birds are set by the U. S. Fish and Wildlife Service after consultation with state wildlife officials in the four waterfowl flyways.

Following are dates, places and times of Meetings:

| | | | | |
|---|---|---|---|---|
| May 14, 1968 | District 9 | Sylva | Courthouse | 7:30 p.m. |
| May 15, 1968 | District 8 | Morganton | Courthouse | 7:30 p.m. |
| May 16, 1968 | District 7 | Yadkinville | Courthouse | 7:30 p.m. |
| May 17, 1968 | District 6 | Albemarle | Courthouse | 7:30 p.m. |
| May 20, 1968 | District 5 | Graham | Courthouse | 7:30 p.m. |
| May 21, 1968 | District 4 | Whiteville | N. C. Highway Com. Shop | 11:00 a.m. |
| May 21, 1968 | District 4 | Fayetteville | N. C. Highway Patrol Barracks | 4:00 p.m. |
| May 22, 1968 | District 3 | Rocky Mount | City Court Room | 7:30 p.m. |
| May 23, 1968 | District 2 | New Bern | City Court Room | 7:30 p.m. |
| May 24, 1968 | District 1 | Edenton | Courthouse | 7:30 p.m. |

The Wildlife Commission met April 23 to formulate proposed regulations, and is scheduled to meet June 11 to establish final regulations after considering wishes of sportsmen who attended the public hearings.

### Daylight Saving and Fishing Hours

Despite clocks being set an hour ahead on April 28, the sun will continue to rise and set on its own schedule. Fishing hours for trout on designated game lands in Western N. C. will continue to run from half an hour before sunrise to half an hour after sunset Sundays, Wednesdays and Saturdays through September 1, and on May 30, July 4 and September 2, all of which are holidays.

### Be Careful With Fire — Dry Weather Ahead

Much of April brought dry weather, and the same can be expected during much of May. Forest and Wildlife Officials warn fishermen and others taking to the woods to be extremely careful of fire. Extreme conditions of fire hazard and an outbreak of fires could result in closing the woods to most outdoor activity.

Be sure matches and lighted tobacco are completely extinguished, and if you use a campfire be sure to drown it completely before leaving it.

### Special Trout Fishing Regulations

For special regulations for trout fishing in Great Smoky Mountains National Park write to National Park Headquarters, Gatlinburg, Tenn. 37738.

The big three of Tarheel big game, boar, deer and bear, present plenty of problems to the game manager. One solution to one problem is discussed here.

# Let's Keep the Loophole Plugged

**by Frank B. Barick**

*Chief, Division of Game*

BIG game restoration efforts in western North Carolina were substantially advanced by separation of the deer season from the bear and boar season during 1967. Reports from both hunters and wildlife protectors indicated that this was a move in the right direction which should show dividends in better big game hunting in the years ahead.

Separation of the two types of hunting followed an exhaustive study of reasons for decline of deer hunting outside of game lands in the far western part of the state. Examination of survey data from all parts of the state showed that deer restoration was failing in the very section where the most effort was being expended by the Commission in its behalf.

The study showed that the primary difference between this section and the rest of the state was in the hunting pattern. It indicated that due to the overlap in seasons and the absence of protective swamp areas, deer were being hounded out of existence under the guise of bear and boar hunting with dogs.

By reducing the deer season to two weeks and closing the bear and boar season during this period, a major loophole in hunting regulations was closed. Thus, it became more difficult to hunt deer with dogs because, on the one hand, it was illegal to kill a deer during most of the bear and boar season, and on the other hand, unlawful elements had no excuse for running hounds during the deer season.

Bill Gibbs, veteran bear hunter and guide at Marion said that the separation of seasons "worked out fine and I hope it stays that way. We probably ought to cut back on the deer season in District 8 but everybody I know of had a good hunt. The only trouble is our bears bunch up too much and then they are more vulnerable to hunting. Closing the bear season for two weeks didn't help my business but it helped the bears and this will help me to stay in business longer."

Dr. Cline of Canton, when asked about the reaction of bear hunters in his section said that the bear-boar season closure "worked out fine since it was only two weeks. Most of our fellows used the time to go deer hunting."

Roy R. Smith of Maggie Valley, veteran of many years of bear hunting and and old hand at training and handling bear dogs said he "heard no complaints. We killed six bears on the management areas and two in the buffer zone and several more on the outside. We believe in hunting for the sport and respect the other man's sport too."

Wayah Bald Wildlife Area Manager Park Peterson said that the separation "really stopped deer dogging all around Wayah and Standing Indian. This has been one of our biggest problems around here and the extent to which it was slowed down should help rebuild the deer populations outside the management areas."

ACTUALLY, separation of the bear and deer seasons is not new. That's the way it was from 1948 through 1955. In 1956, in response to hunter requests, the separation was lifted and both seasons ran concurrently. This brought a strong reaction and the following year it was compromised to a closure of the bear season during the first four days of the deer season. At the same time the deer season was increased from two weeks to three weeks and the following year to four weeks.

Unlawful elements recognized the 20-day overlap in deer and bear seasons as a perfect cover for

dogging deer and a period of declining deer populations set in. This decline became of increasing concern to sportsmen, some of whom felt that it was caused by either sex deer seasons on the wildlife management areas. However, examination of records showed that management area deer populations were actually continuing to increase even after the either sex seasons were initiated and this finding triggered a more intensive study to find the real reason.

Comparison of state-wide game kill survey records with far western management area kill records showed that off-management area deer kills were largely confined to a narrow band surrounding each area. One-half of the deer kill in District 9 was being made on the management areas and the other half on the "outside" deer range which was ten times as extensive. Since there is much more good deer range outside the management area, the "outside" deer kill should be several times as large as the deer kill inside the management areas. Further checking showed that this was the case in other wildlife districts to the east, i.e., "outside" deer kills were much larger than on management areas.

Survey data further showed that our westernmost district was also the center of bear and boar dog hunting interest. However, our knowledge of bear and boar hunters relieved them of responsibility since we knew that the bona fide bear and boar hunter does not want to have his hounds ruined by running deer. Thus, the conclusion was forced that there was an unlawful element running deer with dogs under the guise of bear and boar hunting, and this was verified by field reports from wildlife protectors and responsible sportsmen.

This is indeed a challenging situation. On the one hand we have a section of the state wtih a tremendous capacity for raising and harvesting deer which is producing at only about ten percent of capacity. On the other hand we have in the same section two other species of big game which do not have nearly the productive capacity but which are nevertheless highly attractive and valuable because they are so rare. Only three other states in the southeast have bear hunting and only one other state has boar hunting.

The challenge facing us—the Wildlife Resources Commission *and* the sportsmen who support it—is to attain the full productive capacity of both the whitetailed deer as well as the bear and boar. The bear and boar populations are probably at or near capacity since they are more inclined to prefer wilderness areas and are less compatible with people, livestock and agriculture. Deer, however, will raise as close as the back pasture and could support many times their present recreational load. All three species contribute significantly to the economy of the region but could contribute much more under better management.

Now that we have recognized the problem and developed a solution, let us continue the application of better management by continuing the separation of the deer season from the bear and boar season in the far western part of the state. Public hearings in regard to hunting regulations are scheduled for the middle of this month at which your support—or opposition—may be voiced. ⬍⬍

**Full productivity capacity for deer as well as bear and boar—this is the aim of the Wildlife Commission. Your support is needed to make this aim a reality.**

PHOTO BY JACK DERMID

# How Fish Breathe

**by J. H. Cornell**

*Chief, Division of Inland Fisheries*

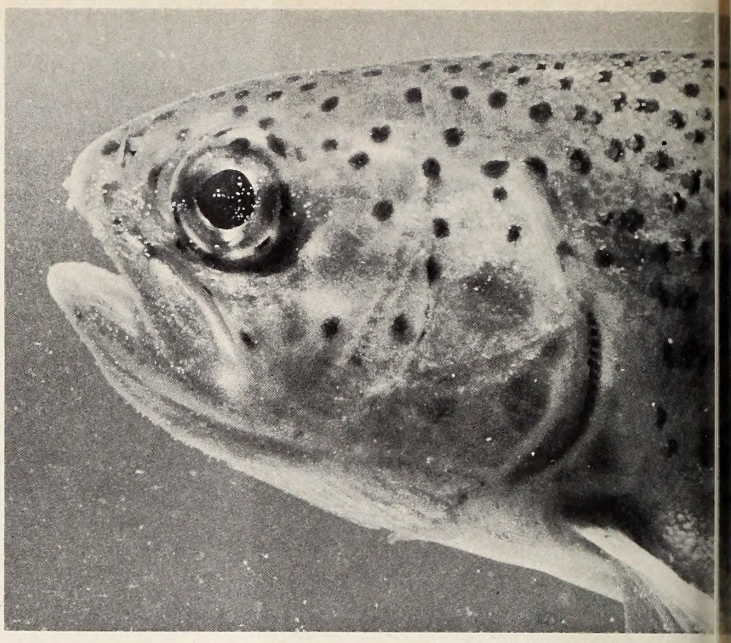


PHOTO BY JACK DERMID

FISH breathe by taking oxygen from the water as it passes over their gill filaments. A fish cannot live any better without oxygen than we can, but the fish gets his from the water and we take ours from the air. Of course, there is a lot more oxygen in the air than there is in water, but fish do not need as much as the warm blooded animals.

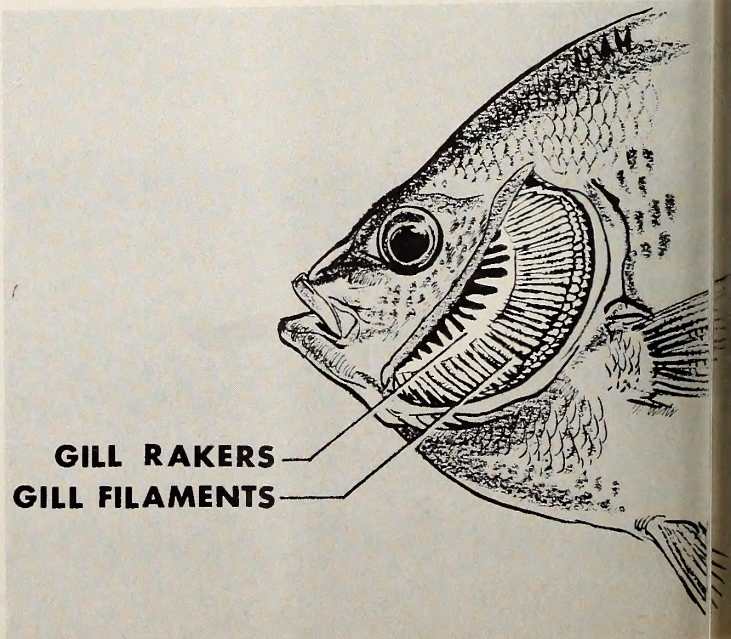
Now of course we know that each little particle of water is made up of two parts of hydrogen and one part of oxygen. But the oxygen that is tied up with the hydrogen is not the oxygen which the fish breathes. That little particle of water is a unit which can be broken down only with great difficulty. The oxygen which the fish breathes consists of minute particles of oxygen mixed in with the particles of water. They can be absorbed through the membranes of the gill filaments as the water passes over the gills. The oxygen particles among the water particles are something like the sugar which is dissolved in a cup of coffee. The oxygen is mixed through the water very thoroughly, but is not actually combined with it and does not become a part of it.

All animals must have oxygen in order to live. They eat food which must be burned up to provide the energy for motion and for the rebuilding of worn out parts. In order for energy to be released from the food that is eaten, oxygen is needed to burn it up. That oxygen is supplied by the blood stream of the animal. These little particles of oxygen are carried along by the blood to the different parts of the body where they are needed. In the process of burning up the food, the oxygen combines with carbon and carbon dioxide is formed. The blood stream carries the carbon dioxide particles back to the gills to be released into the water. In the case of human beings, the same process takes place except that the transfer of oxygen into the blood, and carbon dioxide from the blood, takes place in the lungs.

You know how red the gills of a fish always appear to be. That is because the walls of the blood vessels are extremely thin. In fact, the walls of the blood vessels in the gill filaments are so thin that the gasses, oxygen and carbon dioxide, can pass through them even though the blood cannot.

When the blood comes into the gills the oxygen has been used up but it is carrying a heavy load of carbon dioxide. Because there is more carbon dioxide in the blood than there is in the water passing over the gills, most of it will pass out into the water. On the other hand, since there is more oxygen in the water than there is in the blood, oxygen will pass through the membrane from the water into the blood stream. It is this exchange of

**Dissolved oxygen enters the fish's blood stream through the gills. Tiny capillaries are laced through the filaments. The gill rakers protect the soft tissue from food particles and any water-borne objects.**



gasses that makes it possible for the fish to get the supply of oxygen which he needs in order to live.

This exchange of gasses can take place only through a membrane that is moist. In human lungs, the tissues are kept moist because they are inside the body, and the oxygen can be absorbed there. Since the fish lives in the water anyway, maintaining this moist condition is no problem for him. He does not have to have his gills enclosed within his body.

The next time you catch a bream, lift up his gill covers and you will see four gill arches on each side. On each of these bony arches is a double row of bright red filaments which contain the blood. In these filaments are the capillaries where the blood stream is very finely divided, and where each particle of blood comes so close to the surface that it can get rid of its carbon dioxide and take on a load of oxygen.

After the blood has received its new supply of oxygen, it does not return to the heart as it does in the human being, but passes directly on into the artery, which divides into two parts. One part of the artery carries fresh blood to the head and another part carries the supply toward the rest of the body. This artery lies just below the backbone, and branches from it distribute fresh blood to all parts of the body.

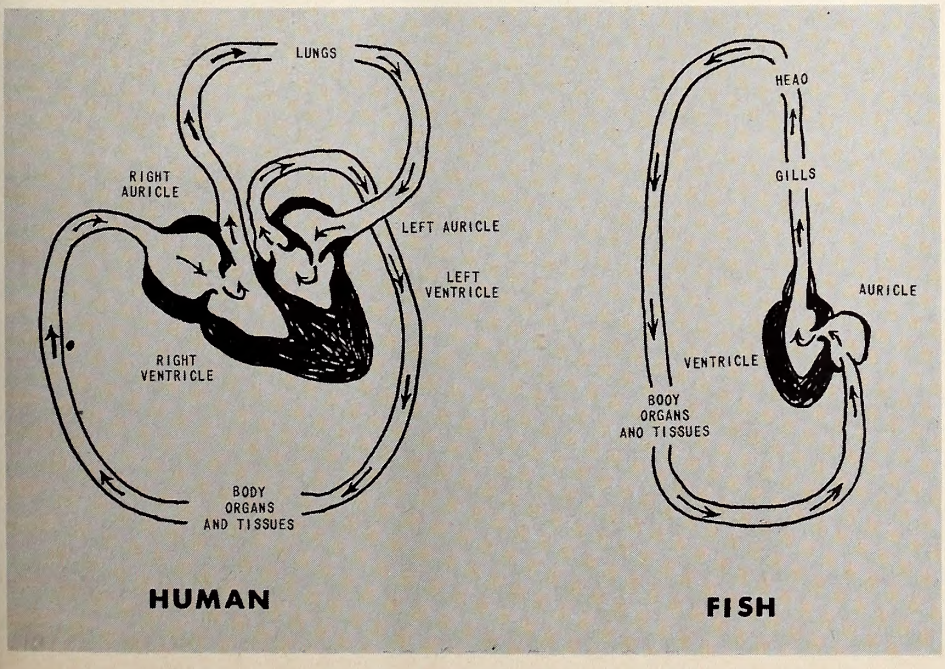
When you open a fish to clean it, you will find this artery under the backbone, and about in the middle you will find the dark red kidneys covering it. They strain out from the blood the impurities made up of broken down nerve or muscle tissue which cannot be burned up by oxygen of respiration. They function almost like ours.

After the blood has passed through all the tissues of the body and delivered its supply of oxygen, it is collected again into larger vessels called veins which take the impure blood to the heart. The largest vein receives the blood returning from the head region and from the other parts of the body and passes it all into the auricle of the heart. The auricle is one of the two chambers of the heart proper. It is a thin-walled chamber which receives the venous blood and passes it on into the thick-walled ventricle. The muscular walls of the ventricle expand and contract rhythmically, just as ours do, and force the blood through a tube called the ventral aorta into the gills where it is again purified.

The heart of the fish is located in the lower part of his body and just behind the gills. It would not be incorrect to say that he always has his heart in his throat.

There is a very interesting distinction between the heart of the fish and our own. The fish has only one auricle and one ventricle, whereas our heart has two of each. In our body the venous blood with its load of carbon dioxide comes into the right auricle of the heart. It passes from there into the right ventricle which pumps it out through a tube directly to the lungs. Up to this point it is similar to the fish where the blood is pumped into the gills. However, after the blood leaves our lungs, it returns to the left auricle of the heart, passes into the right auricle, and is again pumped out into the arteries of the body. This second pumping is the reason we can feel the pulse in our wrist, and it accounts for the speed with which the blood passes through our body. After the fish's blood passes through his gills, the tubes of which were so small that the oxygen exchange could take place, there is no pulse left in his arteries. The blood moves very slowly and is pale and cold.

It is interesting to see how nature has provided for the protection of the delicate gill filaments. On the outside, the gill cover protects them but permits the water to pass through under it. On the inside of the fish's mouth, he has strainers attached to the gill arches to prevent food from passing out with the water and damaging the filaments. These strainers are called gill rakers. The shape of the gill rakers depends on the natural food of the fish. Among those fish which eat their food in large




**Human and fish circulatory systems are compared here in this simplified sketch. The purpose of each system is basically the same: to carry oxygenated blood to all parts of the animal's body, and to carry off waste products.**

pieces, such as swallowing smaller fish, the gill rakers are rather heavy. This would be the case in a bass, for example. Among the fish which eat small organisms, the gill rakers are almost as thin as hairs. In any case they protect the gill filaments from damage while the fish is eating. They serve the same purpose as the valve in our throat which keeps food from getting into the windpipe and going down into our lungs.

It is unfortunate for the fish that the gill rakers are not fine enough to strain silt out of the water. The particles of soil which make water muddy have an abrasive action on the gill filaments. Although a fish can stand muddy water for a short time, the continued action of muddy water passing over the tissues will eventually kill him. Some fish can stand more mud than others, but you know that fishing is never very good in water that is always muddy.

In a fish pond, it would seem as though the fish would eventually use up all the oxygen in the water and would die for lack of it. But the water picks up oxygen from the air, especially when the wind blows and ruffles the surface. This stirs additional oxygen into the water all the time. Also, plants in the water use up carbon dioxide and give off oxygen in the form which a fish uses. This not only supplies the water with oxygen, but also disposes of the excess carbon dioxide.

It would seem, then, that large amounts of vegetation would make the water safe for fish. This is only partly true, because, when the vegetation dies, it settles to the bottom and decomposes. The rotting vegetation uses up the oxygen which the fish needs to breathe. If much vegetation is decaying at one time, especially in calm weather when there has been no wind, the oxygen may be almost completely removed from the water. Then fish actually suffocate and die for lack of an adequate oxygen supply.

Silt in the water can also cover up the small aquatic animals which are the basis of the fish food supply. In natural waters silt can cover up the eggs of the spawning fish and suffocate them. Altogether, silt is dangerous to fish life.

But in your goldfish bowl the fish actually can use up all the oxygen in the water and suffocate. He must either have frequent supplies of new fresh water or else there must be vegetation in his aquarium to supply the oxygen. Your pet fish can be happy just so long as you see that he has the oxygen that he needs. When he puts his head out above the surface and gasps for air, you can be sure his oxygen supply is used up. But, unfortunately for him, he cannot use the oxygen in the air as we do. He must have fresh water or he will die.

We know that a fish needs less oxygen in cold weather than when it is warm. When it is very cold, he almost hibernates. His bodily functions slow up and he needs less food and less oxygen to burn it.

Unfortunately for him, water can hold more oxygen when it is cold than when it is warm. In extremely hot weather the water has the very least dissolved oxygen, and just when the fish needs it most. This fact, together with possible oxygen loss from hot, calm weather and decaying vegetation, accounts for many of the "die-offs" in fish ponds.

We find the same situation in rivers when they are polluted by organic wastes. As these wastes decay, the oxygen is used up and the fish die.

When the oxygen supply gets low, a fish will pant like a person who has been working hard. He needs a certain amount to stay live, and in order to get it he has to flow more water over his gill filaments. He pants for the same reason we do—to get more oxygen into his blood stream.

A fish might be considered impolite by our standards. He always breathes through his mouth. He does have nostrils, though, and most fish have a sense of smell which is more or less highly developed. However, his nostrils are not connected with his throat as ours are, so he has no choice but to breathe through his mouth. In order to breathe, all he does is to take in a mouth full of water, close his mouth, and force it out over the gill filaments. Probably the fish does not worry about being impolite, anyway. ▲▼

**Aquatic plants give off oxygen in their life processes, and at the same time utilize carbon dioxide, a waste product of fish and other animal metabolism. Such plants cannot supply enough oxygen to sustain fish life, however.**

PHOTO BY JOEL ARRINGTON

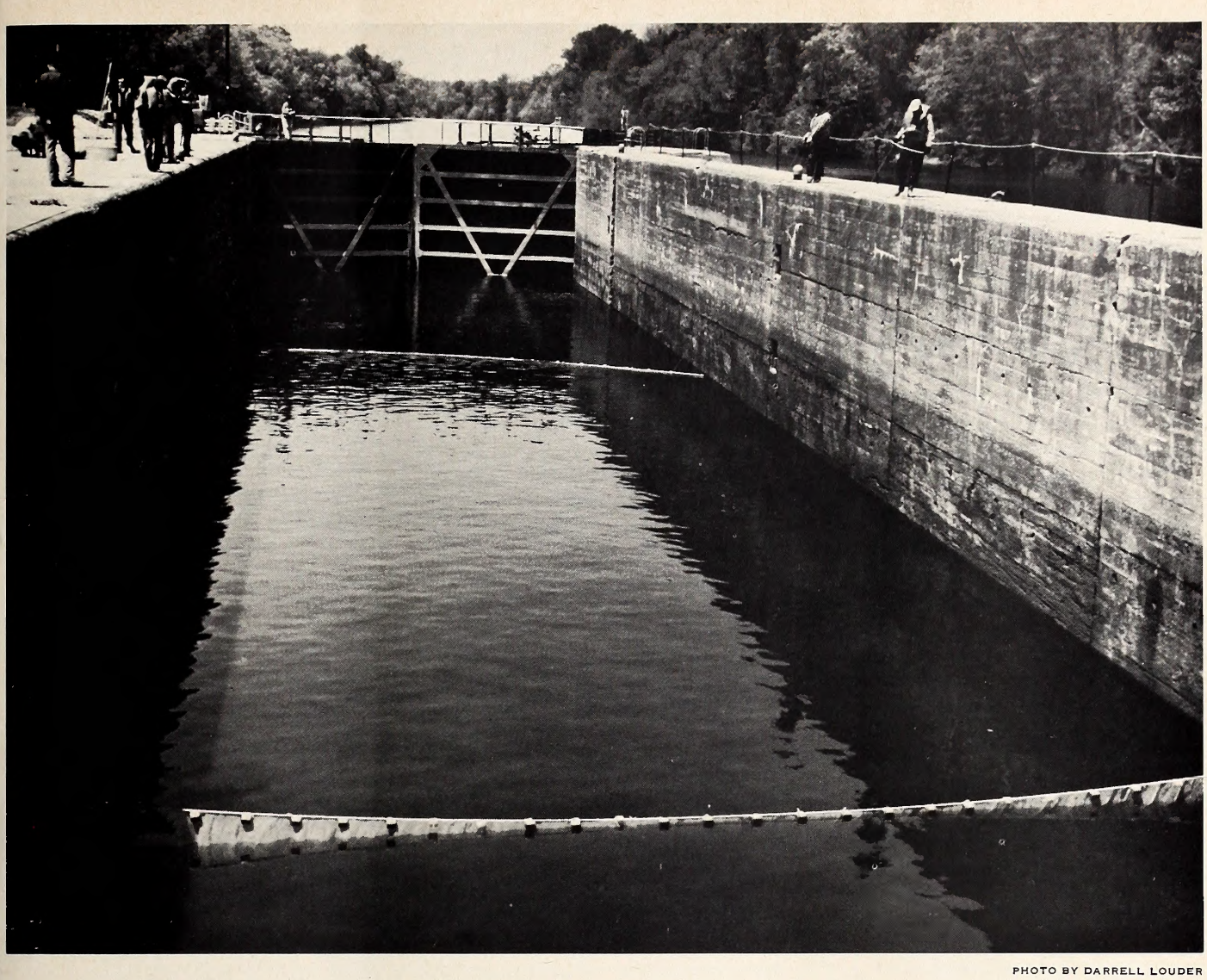


PHOTO BY DARRELL LOUDER

# Success!

**by Darrell E. Louder**
Supv. of Fisheries

IN the spring of 1961, very few American shad were successful in getting past the three navigation locks and dams on the Cape Fear River. Up to that time few, if any, American shad were caught on hook and line. In fact, the possibility of a sport fishery for American shad in the Cape Fear River was considered a twenty-first century dream of the Wildlife Resources Commission's fishery biologists. In less than seven years, and with a great deal of cooperation in research and development by the U. S. Army Corps of Engineers and the U. S. Fish and Wildlife Service's Bureau of Commercial Fisheries, this idea is fast approaching reality.

The question arose when the Corps of Engineers found it necessary to improve its dams at the locks on the Cape Fear River. The State law required fish-passage devices. Rather than spend money on "fish ladders," they agreed to try locking anadromous fish through the navigation locks in the same manner as river barges are passed upstream. To determine if this were possible, the U. S. Bureau of Commercial Fisheries, Corps of Engineers, and the North Carolina Wildlife Resources Commission embarked on a joint project to see if it was practical to "lock" the fish upstream during their spawning run in lieu of installing costly fishways. The original study was located at Lock Number 1 near Acme in Bladen County. The study consisted of creating an attraction flow through the locks, thus enticing the shad into the chamber and lifting them

**On preceding page a net is operated in a closed river lock to determine the number of shad using the lock. This and other similar procedures are used to measure the upstream migration of the American shad each year in the Cape Fear River.**

to the pool above.

Specifically, the locking procedure consists of opening the two lower gates of the lock chamber followed by the opening of the four valves on each of the upper two gates to allow water to flow through the lock chamber at a velocity of two to three feet per second. The lock is left in this position for one hour to allow fishes to enter the lock. Then the valves are closed and the lower two gates are shut.

At this time the American shad in the chamber can be collected with a large net, counted, and returned to the water unharmed. After doing this, the upper gate valves are opened so that the lock fills to the upstream level. The upper gates of the lock are then opened and the lower eight valves "cracked" in order to create a current so the shad will move out and proceed upstream to the formerly unused spawning grounds. After a period of time to permit the upstream movement of shad, the upper gates are closed, the water level reduced to the downstream pool elevation, and the locking cycle repeated.

During 1962, the first year locking was carried on, an estimated 1,030 American shad were passed through Lock Number 1. During that year, no American shad were taken on hook and line. In 1963 an estimated 2,208 American shad were locked upstream and the sport catch was 12 fish. In 1964 an estimated 950 American shad were locked through Lock Number 1, and the sport catch was 177 fish. In 1965, an estimated 1,485 American shad were passed through the lock and the sport catch decreased to an estimated 29 fish. This decrease was caused by high flows and turbid water conditons during the spring run.

During these four years, it became obvious that American shad could be passed upstream successfully, and that by doing so the run could be increased. As a result, Colonel Beverly Snow of the U. S. Corps of Engineers and Mr. J. H. Cornell of the North Carolina Wildlife Resources Commission agreed that the run could be greatly expanded if the locks could be operated for fish passage from 8:00 a.m. to 5:00 p.m. five days per week starting around April 1 and ending about mid-May. The locking program was later expanded to include Lock Number 2 and, in 1967, to Lock Number 3, thus opening the whole river up to Smiley Falls for fish spawning. The beneficial result of this decision is unquestionable.

The first year that the progeny of American shad locked upstream in 1963 reached maturity and sought a way through the lock chamber as did their parents, was 1966.

During this run, approximately 4,097 were locked upstream and the sport catch zoomed to 862 fish. Again in 1967 it increased. This spring, in 1968, it has reached tremendous numbers!

Several commercial fishermen were heard to state that the 1968 run is the largest since the locks were built some half-century ago. As a result, local fishermen have rushed to the river with bucktails, spoons, shad darts, etc., and have made catches numbering from 8 to 40 shad in one day of fishing. If the third generation of these American shad can continue to come back to the Cape Fear River to spawn and successfully navigate the lock chambers, then North Carolina will have an American shad fishery comparable to the fabulous shad fishing on the St. Johns River in Florida.

The Cape Fear River shad fishermen are catching shad by trolling or casting with various types of small metal spoons and weighted jigs. Most of the casters prefer a single lure, whereas the trollers most often use a combination of lures, called the "shad rig," which sometimes results in a double catch. The primary points of shad fishing are to give action to the lure and to keep it as close to the bottom as possible without snagging. The American shad can be caught by casting a shad dart or "triple O" spoon across a submerged bar at a 45-degree angle to the flowing water, reeling it in slowly, and allowing the lure to reach near the bottom as it swings with the current. Shad fishing is best from 10:00 a.m. to 5:00 p.m. when the water temperature is between 53° and 75° F., with top fishing conditions being at water temperatures of 68° to 70° F. If you haven't tried it, join those who have, and become an avid American shad fisherman.

Yes, there is no question about it, the sport fishing and increased commercial fishery for American shad has been one of the major accomplishments of the Wildlife Resources Commission's fishing biologists—all made possible by the continued cooperation of Colonel Beverly Snow and his Wilmington staff of Army Engineers. ◆

**The payoff, of course, is the angler's catch of American shad, like these. Both commercial and sport catches continue to rise each season on the Cape Fear River.**

PHOTO BY JOHN R. PARKER, JR.

A ruling handed down in U. S. District Court recently by Judge Vearle H. Payne, Albuquerque, N.M., may have a far-reaching effect on the perennial squabble between state and federal governments over the ownership and control of game on federal lands.

The ruling came as the result of a suit filed against Interior Secretary Stewart L. Udall, et al, by the New Mexico Department of Game and Fish after officials in Carlsbad Caverns National Park (see "Magna Carta to Carlsbad Caverns", *Wildlife* March, 1968) killed deer for research purposes without proper authorization from the game and fish department.

Park Service contention was that deer on the area were under federal ownership, while the Department of Game and Fish contended the deer were owned by the people of New Mexico.

Judge Payne ruled that the Secretary of the Interior does not have statutory authority to provide for the killing of deer on park lands for research purposes without appropriate state authority and concurrence, and that a permanent injunction enjoining the National Park Service from killing any more deer for this purpose was in order.

Ladd S. Gordon, Director of the New Mexico Department of Game and Fish said, "While this court ruling is obviously narrow in scope, I am sure we all feel that it sets a highly desirable court precedent. We do not know what steps the federal attorneys may take following this decision . . ."

Drawn-out litigation on this case could well delay passage of federal legislation giving states complete jurisdiction over fish and game on federal lands within state borders.

Following is the official position of the International Association of Game, Fish and Conservation Commissioners as stated by President Walter T. Shannon at the North American Wildlife Conference in Houston March 13, 1968:

The International Association of Game, Fish and Conservation Commissioners has for some time been greatly concerned over the continuing trend toward Federal intrusion into the historic and traditional areas of responsibility and jurisdiction of the states in the management of fish and resident wildlife. This gradual usurpation of authority has been greatly accelerated by the opinion of the Solicitor of the Department of the Interior, dated December 1, 1964, which stated, in effect, that the Federal Government has authority superior to that of the states in managing and regulating all fish and wildlife on Federal lands.

If the Federal Government's claim of authority over fish and resident wildlife prevails, then private landowners could conceivably claim a similar right, and the time-honored principle of state ownership, regulation and management of fish and resident wildlife would be destroyed. It is the firm and unequivocal conviction of this Association that the ownership of land does not include the ownership of fish and wildlife as claimed by the Solicitor's opinion. Such a doctrine would have an extremely adverse and chaotic effect on the management of fish and wildlife resources in all parts of the Nation.

Since the Solicitor's opinion was issued, all efforts to resolve this controversy through negotiation with the Department of the Interior have, thus far, been unsuccessful. Therefore, legislation has been introduced in the Congress of the United States to reaffirm the traditional rights of the states to the ownership, management and regulation of fish and resident wildlife.

In attempting to resolve this dispute, it should be emphasized and made abundantly clear that the International Association does not desire to change the present status of certain laws and concepts which have to do with the following:

1. Any international treaty involving the regulation of migratory birds.
2. The Rare and Endangered Species Act.
4. Rights of Indians and natives of Alaska to hunt and fish as established by treaties or Acts of the Congress.
5. The management of lands or control over wildlife species which have been ceded by any state to the United States.
6. The Federal responsibility for conserving and developing fish and wildlife habitat on Federal lands.

The International Association fully subscribes to the traditional right of a landowner to manage his land. It agrees that the Federal Government has the same rights that any other landowner has under the laws of the respective states.

In summary, the International Association believes that it is imperative that the Congress take prompt action to resolve this jurisdictional controversy by reaffirming the states' rights to manage, regulate and control fish and resident wildlife, on all lands, including those owned by the Federal Government, with certain exceptions. Such a declaration of national policy by the Congress will enable state and federal conserva-

## KNOW YOUR PROTECTOR

**Sterling R. Baker**

Wildlife Protector Sterling R. Baker was born August 15, 1935, in Cumberlind County. He is the son of Mrs. Lucille Ray Baker and the late Arnie B. Baker of Fayetteville, North Carolina. Mr. Baker graduated from Massey Hill High School in Fayetteville and spent two years in the Army. After his discharge from the service, Baker continued his employment with Coble Dairies, Inc.

Baker completed the Pre-Service Training School for Wildlife Protectors at the Institute of Government in Chapel Hill in June, 1961. On December 1, 1961, he was assigned to Bladen County as Protector Trainee. On January 1, 1962, he was assigned as Wildlife Protector to Bladen County. Since his initial employment, he has completed six In-Service Training Schools, and serves as an instructor in Radiological Monitoring and Water Safety.

Baker is a member of the Bladen County Peace Officers Association, National Rifle Association, Southeastern Association of Game and Fish Commissioners and a Master Mason in Bladen Lodge No. 646, A. F. and A. M., in Elizabethtown. He is a Steward in the Carvers Creek Methodist Church, a member of the Official Board and the Methodist Men's Club.

Baker is married to the former Peggy Joyce Gray of Fayetteville, North Carolina and they have one daughter, Sheila, who is 16 months old.

## DIVISION ENFORCEMENT RECORD FOR FEB., 1968

**HUNTING & FISHING**

| | |
|---|---|
| Persons checked | 10,364 |
| Total prosecutions | 412 |
| Total convictions | 398 |
| Total cases not guilty | 2 |
| Total cases nol prossed | 10 |
| Total cases dismissed | 2 |
| Total fines collected | $4,784.95 |
| Total costs collected | $4,109.35 |

**BOATING**

| | |
|---|---|
| Persons checked | 489 |
| Total prosecutions | 24 |
| Total convictions | 24 |
| Total cases not guilty | 0 |
| Total cases nol prossed | 0 |
| Total casees dismissed | 0 |
| Total fines collected | $ 55.00 |
| Total costs collected | $ 189.60 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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tionists once again to unite and present the common front so vitally needed in the management of the Nation's fish and wildlife resources.

### Turkey Talk

Mr. Thad Cherry
Turkey Biologist
NC Wildlife Resources Commission
Raleigh, North Carolina 27602

Dear Mr. Cherry:

I have just completed your article, "Wild Turkey Restoration—A Joint Responsibility," in the January issue of "Wildlife In North Carolina."

I wish to say that I agree with you one hundred percent. The identical things are happening here in Florida. During the past three years fellow turkey hunters and myself watched over 3000 acres of prime turkey range fall before the pine tree planters. Every hardwood was rung and poisoned. During this season in the wooded areas near the clearing we found where poachers using baits have slaughtered and dressed as many as 15 turkeys at one time.

Presently I am speaking for six turkey hunters who are more than concerned about this. We want to investigate the possibility of starting a Florida Turkey Hunters Association. We would appreciate it very much if you would either send me the address of the North Carolina Turkey Hunters Association or ask them to write us on how to get an association started in Florida. We are sincere in this and would appreciate any help we can get.

David E. Smith
Tallahassee, Florida

Mr. Smith and others interested should contact the writer of this next letter, Mr. Parker Whedon. . . Ed.

DEAR SIR:

Congratulations to Thad Cherry and to *Wildlife* for a timely and extremely well written article concerning the destructive practice of releasing game "wild" turkeys in our state. The release of such mongrels is undoubtedly responsible in large measure for the reduction or extermination of wild turkeys in several areas. One of the most well known areas where regular releases of such poultry have occurred during the past few years, is the lower end of Randolph County and I wonder why this information was missing from the data given in the article.

Mr. Cherry tentatively suggests that some kind of legislation is needed to restrict or prohibit this destructive practice, in which suggestion I wholly concur. In view of the fact that all turkey biologists unanimously agree that the release of game farm turkeys is an abomination, it should not be difficult for our Wildlife Commission to secure the enactment by the next legislature of a statute making such releases criminal offenses.

Parker Whedon, President
Turkey Hunters Association
Suite 523 Law Building
Charlotte, North Carolina 28202

### Gone Cats ? ?

DEAR SIRS:

I notice with interest the sketch of the Mountain Lion in the March issue (back cover), with its statement that the magnificent animal may still be extant in North Carolina. I have been amused for some years about reports in such bastions

of knowledge as the *Encyclopedia Britanica* (and others) and the North Carolina Museum of Natural History that this creature no longer graced our state.

From personal experience, I can assure you they have never disappeared from the scene. However, there are too many persons who would immediately go and kill the last one if they knew where to look . . . and the present laws would fully allow them to do so. I, nor any other sportsman, will disclose the lair of these animals if known because of this danger.

I would like to see stiff laws protecting our predatory animals and birds from wanton slaughter. These animals are no threat to man; indeed, their *absence* is a great threat to the health of our herds of deer and other game animals. I suspect a few well-intentioned pumas would also discourage the roving wild dog packs that cause so much trouble.

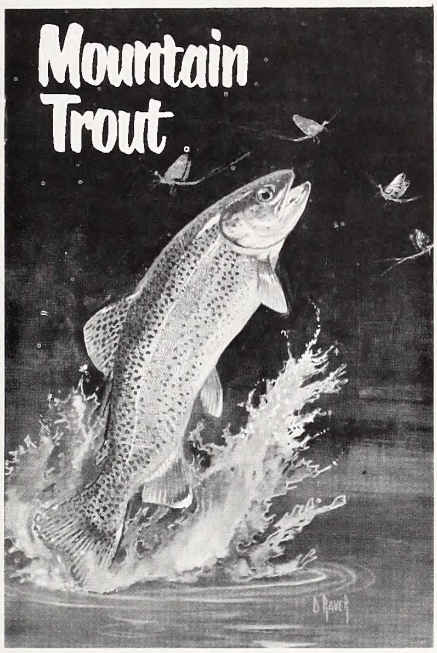
I would certainly like to include hawks, foxes, and alligators in the list. And the habitat of these animals MUST be protected in large enough parcels of land to be meaningful.

I also strongly favor laws to prohibit the importation and sale of fashion articles made of skins (or other parts) of animals threatened with extinction. Presently these include the spotted cats and alligators. A national law prohibiting importation of products of any species threatened with extinction would certainly be more effective than a state law. In the meantime, however, a state law would be better than nothing. It would let our intentions be known.

Considering the many letters to the editor about "incidental" killing of Bobcats, I suspect a special appeal to hunters to abstain from shooting everything that moves is in order. When you go deer hunting, take a camera to bring back the predator species. You won't eat them, anyhow.

Gary P. Todd, M.D.
Portsmouth, Virginia

# Between the *Wildlife* Bookends




**Prepared by N. C. State University, and the Wildlife Commission, this booklet offers tips on catching, cooking and freezing trout. It's free from your County Home Economics Extension Agent.**

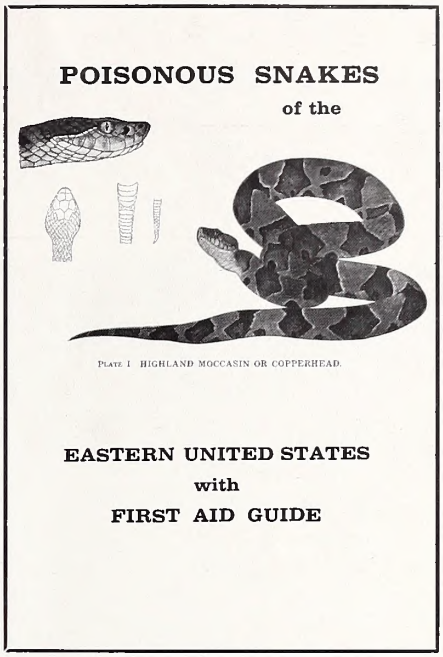



PLATE I. HIGHLAND MOCCASIN OR COPPERHEAD.

**Authored by long-time State Museum Director Harry T. Davis, this booklet describes and illustrates eight venomous snakes. Send 25 cents to Museum Extension Fund, Box 2281, Raleigh, N. C. 27602.**

## Old One

DEAR SIR:

We have a customer whose deceased father left among his papers an old Caldwell County Hunting License. This party does not want to part with these long ennough to send them to you to make a picture, so I will try to copy the license as it is written on the original copy.

No. 88 $ 1.25

North Carolina
Caldwell County Hunting License
Sept. 1, 1925 to Feb. 15, 1926

This is to certify that S. W. Suddreth a resident has paid the sum of one & 25/100 Dollars for the privilege of hunting birds in Caldwell County. This amount being the license tax required by act of Assembly P.L.L., 1925

This license must be exhibited to any Warden demanding to inspect same
Dated this 19 day of November, 1925
W. C. Moore, Jr.
Clerk of Superior Court

On the reverse side:

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Dove—Nov. 1 to March 1.

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(no closed season on rabbits, bears, wildcats) Nov. 1 to Feb. 15.

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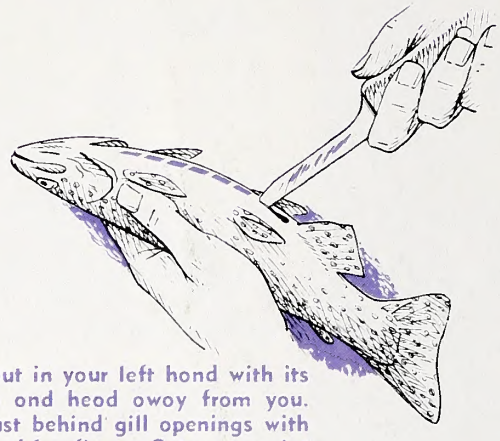
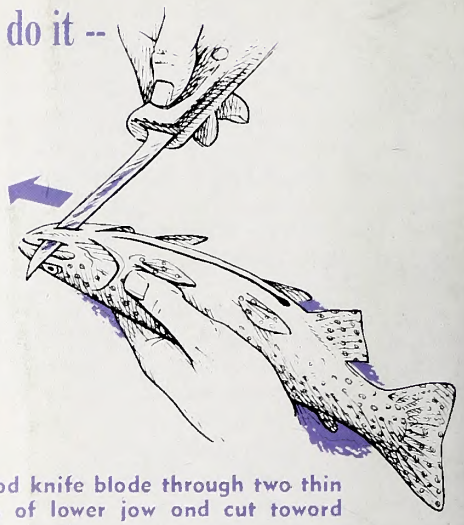
# HOW TO CLEAN YOUR TROUT

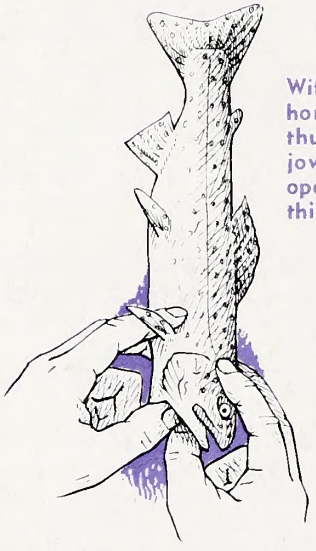
## Here's an easy and quick way to do it --



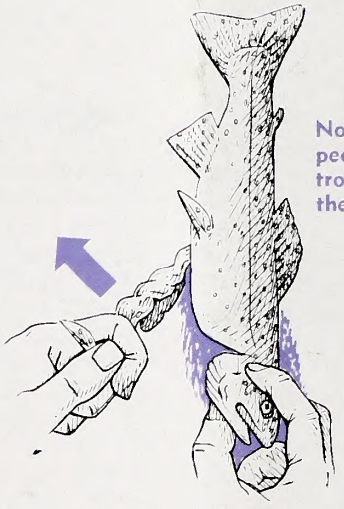
Hold trout in your left hond with its belly up ond heod owoy from you. Grosp just behind gill openings with thumb ond forefinger. Cut up to point between pectorol fins but not beyond.



Threod knife blode through two thin oreas of lower jow ond cut toword front.



With first two fingers of your right hond gripping trout's heod, put right thumb into cut you just mode under jow. Also put your left thumb into this opening ond slip first two fingers of this hond oround pectorol fins.



Now just strip throot, gills, pectorol fins, ond oll entroils bock ond owoy from the fish in one piece.

Eldridge Hardie

Run your thumb inside body covity from toil to heod olong bockbone to remove membrone ond dork materiol there, ond your trout is cleon.

NOTE: Trout keep best if they ore cleoned "dry." Use woter only when they ore reody to freeze or cook.

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# Wildlife IN NORTH CAROLINA

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PHOTO BY JACK DERM

# Catbird

*A late hatch of catbirds gets attention from both parents. The largest mouth often gets the first serving, but all four youngsters will get their share*

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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EDITORIAL STAFF

ROD AMUNDSON _ _ _ _ _ _ _ _ EDITOR
DUANE RAVER _ _ _ _ _ MANAGING EDITOR
LUTHER PARTIN _ _ WRITER-PHOTOGRAPHER
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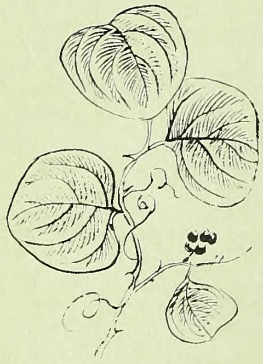
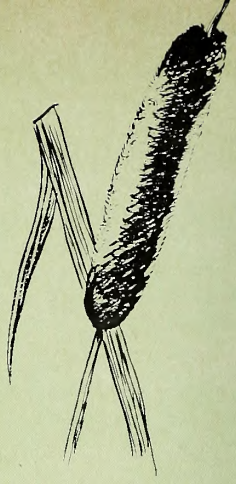
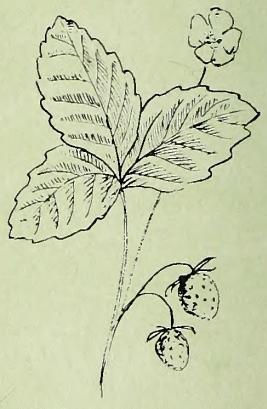
The Kentucky warbler is a handsome bird of the damp, shady woodlands of our State. It is one of seven or eight warblers that have the characteristic golden yellow somewhere on their bodies. The black eye patch is fairly distinctive. It is a shy bird, and its wren-like song is more often heard than the bird is seen. It nests on or just off the ground in a leafy bush in May or June. Transparency by John Hardister.



# "Live Off The Land"

**by Steve Price**





THIS spring and summer, as North Carolinians take to the woods for a few days of camping, much of their pack space will be filled with food. True, today's freeze-dried foods are light and provide great variety in camp menus, but few realize the woods themselves are filled with highly edible wild foods that can be prepared with very little trouble.

That clover you walk through makes a tasty salad. So do the green briers you cut down because they kept clawing at your trousers. Those cattails down by the pond can be used to make delicious pancakes. And the bark of that big pine tree near the tent can be used to make bread!

Most common edible wild plants may be prepared in one of three ways: boiled or steamed in water like corn; roasted or baked like potatoes; or steeped in boiling water like tea.

Some wild plants may be eaten raw. These are most often wild fruits or nuts, such as strawberries, blueberries and blackberries or walnuts, sweet acorns and pecans.

One type of nut is frequently overlooked, however, and it is very sustaining and nutritious. This is the pine nut or pine seed, found inside pine cones. These seeds may be eaten raw or roasted to remove their slightly resinous taste. If the seeds are gathered in August, when the pine cones themselves are opening, the seeds are quite sweet.

Pine trees may be used to provide another nutritious food—pine bark bread. For centuries American Indians prepared and ate this bread, and in fact, the word Adirondack means "tree eater." Today the United States Army Special Forces troops are taught the recipe as part of their survival training.

The inner bark of the pine is warmed over a slow fire where it becomes thick and porous. It is then chopped up and may or may not be mixed with flour to make a type of dough which is then baked. Old timers always left out the flour, but preferred to gather the inner bark in May or June when it is sweeter.

Nothing adds more to a camp meal than a good green salad, and clover and dandelion are just two of several common wild plants that may be boiled, steamed or stewed to make these salads. Care should be taken to collect and use only young and tender leaves, as old or tough leaves lack flavor and tend to ruin the flavor of the others.

Wash the leaves thoroughly in cold water. When cooking, use as litle water as possible, letting the greens simmer in their own juices. Throw in a small piece of bacon to add flavor and season with salt and pepper.

If the greens are too strong for your tastes, try cooking them next time in a change of water. First cover the greens with water and boil. Then pour off the water and add fresh water. Bring this to a boil and then simmer until the greens are tender.

Cattail shoots and new growth of catbrier are two more wild plants that may be steamed to provide good wilderness eating. First wash the shoots in several changes of water. Next, place them in boiling water and steam until tender. Served with seasoning and butter, these two form a real woodsman's delight.

The roots of cattails are also good eating, and are very high in starch content. First, of course, the roots must be washed completely. They may then be roasted or baked in coals. If baked in coals, first wrap the roots in any large leaves that have soaked in water. These wet leaves will first steam the roots, which will then be baked as they dry. Most roots require only about an hour in the coals, so don't overcook them. Practice will show just how long to leave them covered.

Even the pollen of cattails is edible, and may be used to make breads or pancakes. Here is a favorite recipe of well-known outdoorsman Brad Angier on cattail pancake:

1 cup pollen
1 cup flour
1⅓ cups milk
2 teaspoons baking powder
2 tablespoons sugar
2 eggs
½ teaspoon salt

Many plants may also be used in preparing camp teas. Raspberry leaves, clover heads, sassafras root bark and sweet fern leaves are all popular.

Again, as in all wild plant preparation, the first step is to wash the leaves or bark in cold water. Then simply place them in a large pot and cover with water. Bring to a boil and stir for a few minutes. Strain the tea through a clean rag or handkerchief and sweeten.

Much has been said about the food value of mushrooms. They contain no fat, no protein and no carbohydrates, and only small amounts of minerals and vitamins. As one botanist has said, "A fellow can eat his weight in mushrooms and still starve to death."

What about those plants which one can't positively identify? Outdoorsmen are divided here, and many refuse to touch those of which they are uncertain. (This is certainly the safest) Others will cook part of the root or leaves, eat a very small portion and wait several hours to note any effects. Still others say anything may be eaten if it is boiled long enough. Be careful.

Whatever method you choose to follow, you'll soon find that "living off the land" is fun and adds great interest to camp cooking. Not only does it save pack space and cut down on food costs, but it also provides valuable lessons in wilderness survival, should the need ever arise. ⬍

**Let's hope that it is rare trip when we will have to depend on "the land" for food. But a knowledge of what Nature offers in the way of life-sustaining foods may come in handy in a pinch.**

# A Special Report on the 1967 Either Sex Deer Hunt

**by Frank Barick**
*Chief, Division of Game*

ADMINISTRATIVE problems usually don't make very good reading but this problem was new and different and therefore especially challenging.

The problem was created by the decision to restrict to one day the 1967 either sex deer hunts on the wildlife management areas. For the past several years these hunts had been of two, three, four or more days duration providing up to 12,571 hunter-days of use. Even with this pattern, opening day found some areas greatly oversubscribed, with over 800 hunters, for example, wanting to get into the 6,900-acre Thurmond Chatham area. By confining the hunt to one day we could expect similar overcrowding on most of the other areas as well. Clearly, this would be highly dangerous and certainly would not be good management.

Electronic examination of the license numbers of the 12,571 hunter-days expended the previous year indicated that many of these hunters hunted more than one day and that they were actually only about 9,000 different hunters. But even this number could create serious overcrowding so hunt-

er quotas were set up for each area to restrict participation to a safe number related to the size of each area. This came to a total quota of 5,800 hunters for all areas.

But hunter quotas usually result in advance parking by hunters jockeying for position, and congestion of traffic on roads leading to the checking station, and all the hazards related thereto. The answer was advance public drawing except that if the bear hunt drawings with only 50 to 100 applications normally require about two hours, a drawing for over 5,000 hunters would require two to three weeks. This would tie up several people during that time and completely disrupt other functions.

A high speed method, impersonal and impartial, was needed and fortunately we found this in the modern electronic data processing now available. Consultations were held and an electronic computer program was prepared which would conduct the drawing in a matter of minutes rather than weeks.

Since this was a first time operation, several problems were anticipated but with excellent sportsman cooperation they were held to a minimum. One of the basic requirements was that each hunter be limited to only one application so provision was made to indicate several alternate choices in the event his first choice could not be accommodated. We were highly pleased to find that of over 5,000 pre-drawing applications submitted only about 20 were duplicates, and some of these were the result of excessive cooperation, i.e., a hunter's name included in a party group application without his knowing it.

Another problem encountered was recording the wrong number for total party size which "gummed up" the computer until it was identified and corrected. These and a few other "bugs" were uncovered and corrected and in almost less time than it takes to say Jack Robinson 4,611 pre-drawing applications were awarded their choice of hunt. This left 1,189 vacancies most of which were filled with post-drawing applications on a first-come-first-served basis. Only 14 vacancies remained at the end of the application period.

In addition to doing the drawing, the computer also printed individual cards of authorization addressed to each successful applicant and individually addressed letters advising of failure to be drawn to the others. It then printed out, in duplicate, a list of successful applicants for each hunt, listed serially by license number.

Actually, the most tedious part of the operation was assigning identification numbers to the applications and checking post-drawing applications to insure against duplicate application. This latter would have been an impossible task without the sequential listing of applicant's license numbers by the computer. Even so, it required more than half the time of one of our secretaries for several weeks.

Upon termination of the application period, the post-drawing applications were entered into the computer and it printed cards of authorization for each person who could be awarded a hunt. It also printed an alphabetically arranged check list of hunters assigned to each checking station so as to help prevent unauthorized participation and to help those who had lost their cards of authorization.

We had expected that total participation would be somewhat less than the hunter quota established for each area. We thought that there might be about ten percent "no-shows" but we had no previous experience on which to base this anticipation. Actually, the overall "no-show" amounted to 27 percent of those authorized to participate. Hunters were not inconvenienced however, since the procedure did not require submission of money with the application, as originally planned. Remittance with application was abandoned to preclude complications of refunds to unsuccessful applicants.

As it turned out, it was a good thing that application in advance was required because over 1,500 hunters chose Uwharrie as first choice of hunting area and the hunter quota for this area was only 350. We dread to think of the consequences if these 1,500 hunters had showed up at a checking station where only 350 could be admitted. Several other areas were oversubscribed by first choice but thanks to the computer approach each area was allocated its quota of hunters in a fair and impartial manner.

Check-in for the hunts was smooth and fast. It was most gratifying to see such a large number of people follow through with the hunt procedure, having cards of authorization, hunting license and permit fee in hand as they approached the checking station. It demonstrated that they clearly understood the advance publicity as to procedure. Of 4,228 participating hunters, only a very few failed to have their cards of authority and these were accommodated promptly by checking their identity against the computer print-out of alphabetized check-list.

Results of the hunt were very good, averaging fewer than eight hunter-days per kill as against the long-time average of ten. But this was really anticlimactic after having gone through the throes of hunt allocation. ⬍⬍

# Doc's Secret

by Cam MacRae

"MYSTERIOUS light?"

"Yeah. In Lake Norman."

"*In* Lake Norman?"

"On the bottom. Twenty feet deep."

"What was it doing there?"

"Nothing. Seemed like it did move some. But that might have been the waves."

"How did it get there? Who put it there?"

"Don't anybody know. Some folks claimed it was a house light left burning when they filled up the lake. Oneye said there might be somebody down there drownded. If there wasn't he would of turned off the light when he left."

"Can you still see it?"

"Naw. Not since the Monster party. That was four years ago. A bunch of those Scuba divers had a beach party one night, and they had a big tank of oxygen. They were drinking it out of paper cups. The party must have got going pretty good and one of the fellows said he heard there was a monster down there that could light up its eyes. One thing sort of led to another till they got up a $25 pot for anybody that could grab the monster by the tail. Two of the fellows that had plenty of oxygen went down and saw the light and were sneaking up on it. One of them was about to grab it when the other one pinched him. Lordy! He shot off the bottom so fast he went 8 feet in the air. With his flipper kicking it looked like he was walking on water. He almost made it to shore. And shaking so bad they thought he had the bends. It cost $25 to get him calmed down at the hospital, kept yelling he was monster bit."

Maybe Doc knew more about that light than he would tell. He and his Buddy had pulled out of Oneye's Landing in a boat one night four years ago, and Oneye knew they had a $15 electric lantern with a $5 battery in it. They got back kinda late and one of them fell in because he couldn't see the dock. You know if he had a lantern he could see the dock. Where was it?

You see Doc had heard about hanging a lantern over the side of the boat to attract the fish when you were crappie fishing. So he figured maybe it would attract bass. Like when your car headlights shine out over the water in an inlet at the beach. The mullet jump out of the water like crazy.

So Doc bought the real bright lantern, bright as a car headlight, that said on the box it would float. He had $20 in it.

They were on their way over to the Rock Dam when they passed the big Hawaiian Outrigger charter boat. Some Davidson College boys were having a party on it, and they had girls. Doc decided to test his new light on them. Sure enough, it showed everything that was going on, which was a lot.

Doc got kind of excited.

"Some of the girls must have fallen overboard! The boys are giving them mouth-to-mouth resusitation!"

Doc figured they needed medical attention and was going over to help, but while he shined the light on them they started throwing cans at him.

"Let's get out of here. You can't catch any fish where people are falling in the water, and cans are splashing all over the place!"

About a mile down the lake they came to a long stretch of beach with a sandy point sticking out. Here is where Doc proved his fish light theory. They cut the motor off and quietly paddled within about 75 feet of the point. Doc held the light down close to the water and shined it along the water just off the point. Sure enough, some bass started jumping out of the water. He turned it off and they quit. He waited a few minutes and tried it again. Dadburn if they didn't start jumping again. Doc was plumb happy.

"I've found the secret of locating bass at night!"

"Gee, Doc! Look at 'em jump!"

His Buddy had a regular five cell flashlight so he wanted to try it, too. But the fish didn't jump.

"The light isn't strong enough, Buddy. That's why other fishermen don't know about this. It takes a very bright light."

So then they turned off the light and quitely paddled closer to the sandy point and started casting Jitterbugs and Hula Poppers where the bass had jumped. Nothing happened.

"You sure can locate 'em, Doc, but doggone if you can catch 'em. What's the matter?"

"Probably blinded by the bright light. Let's go somewhere else."

So on the way to the Rock Dam they stopped beside an island that had a point at one end. They shined the light over the water just like before. Son-of-a-gun, bass jumped. Turn off the light and they quit. But they wouldn't strike a lure.

That gave Doc an idea.

"What we need to do is go over to the Rock Dam and put the light in the water. Then we can back off and cast near it when the bass are attracted to it. It's a good thing it floats."

That's what started all the trouble.

They got pretty near the shore and cut off the motor. When they had drifted a little ways Doc leaned over and put the light in the water real easy.

Then he whispered, "Paddle

• continued on page 27

# Pine Straw:

## A New By-Product of Forest Wildlife Management

by Norman Lantz
Forester

A famous cartoonist once created a mythical animal that happily produced milk, butter, eggs and fresh meat and whose sole pleasure in life was to make human beings happy by producing these commodities.

If this cartoonist had created a plant to serve the same purpose, he might have come up with something similar to North Carolina's famed longleaf pine (*Pinus palustris*).

From the days of the earliest settlers in North Carolina, the longleaf has held an important position in the State's economy. Since the longleaf's resinous lumber could withstand weathering in a country where paint was scarce, and its timbers were strong and durable, it built bridges and millhouses, ships, and wagons, cradles and barns. The longleaf furnished timber, turpentine and other naval products, straw for mattresses and for mangers, and its fast-burning "lightwood" provided torches for uncounted hunters, farmers and other outdoorsmen.

The longleaf is kind to animals as well as to man. Its cone-borne seeds are preferred food for quail and many other seed-eating birds as well as for squirrels. It is so preferred by the black fox squirrel that he is seldom found outside the range of the longleaf. More doves nest here in the pine than in any other tree, and other birds use the straw of the longleaf, and other pines, for nest building. The thick, heavily-crevassed bark of the longleaf is a gathering place for insects, and thereby, a banquet table for insect-eating birds.

Like other trees, the longleaf also provides cover for animals, retards erosion, helps build soil and makes fine shade.

In addition to the economic value of the longleaf, is its aesthetic value: tall, fragrant, strong and green, even in the dead of winter, the longleaf is a handsome tree. North Carolina can be proud to be called the land of the longleaf pine.

On the Sandhills Wildlife Management Area, in the heart of longleaf country, the North Carolina Wildlife Resources Commission has long known the value of the longleaf as a prime producer of quality timber and is managing the species to maintain and improve wildlife habitat. However, management area specialists have recently discovered that, like the goose that laid the golden egg, the longleaf pine yields one product which can be harvested over and over.

This additional "golden egg" is harvested in the form of longleaf pine straw. The straw, an accumulation of fallen needles, is sold to dealers who rake and bale it before selling it to retail distributors.

The baled straw is trucked to nurseries and garden centers in the mid-Atlantic and New England states, often as far north as Connecticut and as far west as Ohio. Here it is used as an acid mulch for general nursery work. Light, easy to handle, inexpensive and fragrant, the straw will soak up large amounts of water and retain moisture, for it has a homogeneous composition and does not pack.

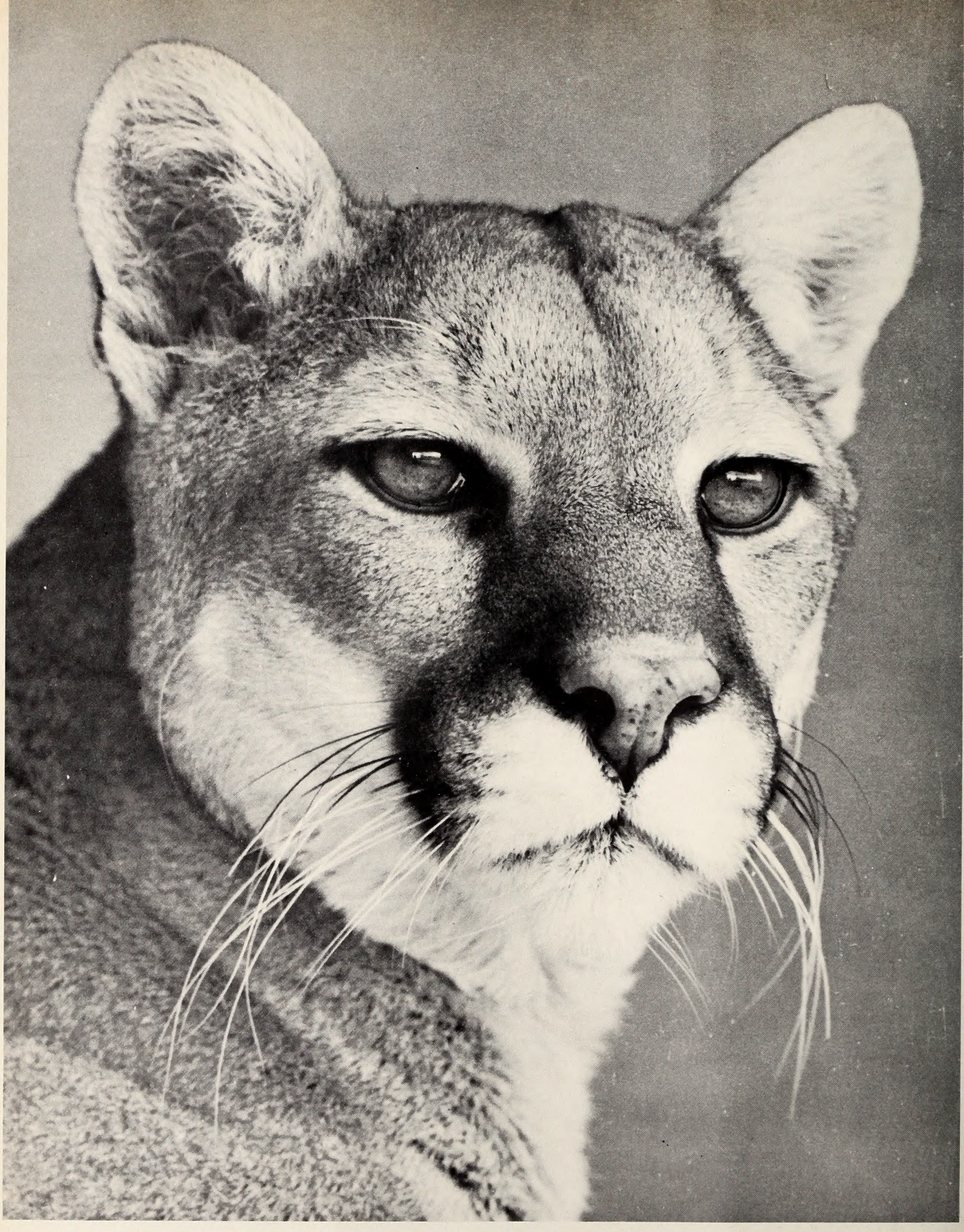
In short, it seems to be a gardener's dream. It is particularly favored by strawberry farmers. It is also much used by farmers to cover tobacco beds and as livestock bedding.

The long fibrous needles are suitable for weaving into baskets and mats and for making heavy brushes. After processing, the fibers can be converted to pine wool, which is used by mattress makers and upholsterers. It has been used as surgical dressings, sanitary litter for poultry houses and tinder.

At the Sandhills Wildlife Management Area, Wildlife Commission personnel have found that a fully stocked stand of longleaf trees 30 years old will accumulate about one quarter ton of prime pine straw per acre per year. In economic terms, this means about $10.00 per acre. At this rate, longleaf pine is more profitable as a producer of pine straw than as a producer of lumber.

Longleaf pine straw is a fine product, indeed—and nobody has to kill the goose.

**The young longleaf pine at right will push upward rapidly and soon fill a woodlot like the one below; its crop of pine straw covers the ground.**



by Rod Amundson

# DIG THAT CRAZY CAT, CAT

SINCE a drawing of a mountain lion appeared on the March, 1968, back cover of WILDLIFE, there have been numerous letters from people who claim to have seen them in our state, and from people who want more information as to the possibility of their existence here.

Accompanying the drawing was this notation: "The mountain lion was once thought extinct in our state. Recent reports of the puma's presence question this now."

Either the animals are present in our state, or they are not; there can be no in-between; but there can be, and is, plenty of confusion about these big cats. Text books are not much help. Anthony's Field Book of North American Mammals, one of the more authoritative source-books, lists eight species and sub-species under the general heading "Cougar-*Felis cougar* and related forms, "but does not list North Carolina as being within the range of any of the species described. But the author qualifies this by saying ". . . the geographic ranges given in this field book are provisional."

He goes on to say, "The classification of cougars is in a condition far from satisfactory. Many names are in more or less current usage and it is very likely that when these big cats are revised upon the basis of a large series of specimens, it will be found that all of the North American Cougars are races of one species."

But that doesn't resolve the question. To further cloud the issue, these animals have a flock of local names: cougar, puma, mountain lion, painter, panther, and catamount. Whatever you call them, you can't convince people who have seen them here that these seven-foot-long cats do not exist in North Carolina.

Bob Simpson, who lives in Morehead City and is Field Director of the N. C. Wildlife Federation, has spent many days camping and hiking in cougar country. He has seen them in the Rocky Mountains, and saw one at Camp Lejeune, North Carolina.

Claude Schalagenhauf, Gastonia says, "For 26 years I have been driving and walking over the mountains on every occasion that is afforded me. Possibly, three of four years of this time have I failed to see the great puma, or a pair of them or their tracks.

"My old mountain friend calls him a 'Painter.' When we would run across his tracks within 500 feet of the house he would always say, 'Don't say anything to the kids. They will be scared to death.' I am sure they wouldn't be, but I respected his wishes.

"On two occasions with a 30.06 in my hand I could easily have killed one that would have measured seven to eight feet long. But like my deer hunting over the years (I've only killed two and both in foreign states), the picture and thrill of just seeing them gives a far greater satisfaction to my being.

"I am sure that there are those who would kill them on sight and never tell of their kill. I think this is the reason the authors who write for . . . sportsmen's magazines make such outlandish claims that the mountain lion has been extinct in North Carolina for many years."

Mrs. Wiliam Keller, Lake Lure, writes, "A camper in the Lake Lure area last fall was positive he had seen a mountain lion although no one ever sees one or hears tell of them any more. The camper was a person of reliable character and this was his second year of spending the summer here, so we considered him truthful."

Monte S. Smith, Lenoir, writes, "I remember after reading 'Fond Farewell' (back page, March, 1968, issue—Ed.) a sighting of a mountain lion by my father and grandfather about 12 years ago. This occurred as they traveled north on the Blue Ridge Parkway one night near Grandfather's Mountain They observed the animal as having a long tail instead of a stub tail like that of a bobcat."

For the past several decades there have been persistent reports of cougar sightings in North Carolina, some of the sightings being in the mountain vastnesses, others from the swamp and pocosin areas of the Coastal Plains.

Cougars are cats; and catlike, they are elusive and secretive of habit. In his Field Book, Anthony says. "The Cougar or Puma is one of the most difficult of wild mammals to see under normal circumstances. Men have spent years in regions where the tracks of these Cats showed the animals to be fairly common and yet have not seen the beast himself. The Cougar has been given rather a fearsome reputation in literature; as the 'Catamount' or 'Painter' has figured in more than one thrilling tale. In eastern North America especially, it seems to have been a greatly feared animal; in the West the ranchers and settlers have regarded it very much the same way they have the wolves and bears, that is, harmless unless cornered."

Persistent, consistent reports and rumors just can't be brushed aside with a comment like, "Well, if you really did see one it probably escaped from a zoo or a traveling menagerie." There just aren't that many fugitives from zoos or menageries.

There is an axiom of nature: where you find one of a species there are bound to be more. But there are logical arguments against the natural existence of a breeding population of cougars in North Carolina. Nightly, for many months out of the year literally hundreds of fox hounds and coon hounds are turned loose in the woods and swamplands, and in the daytime hundreds of deer hounds and bear hounds trail through habitat purported to be that of the cougar, yet there has been no *authenticated* report (to the writer's knowledge) of one being treed or brought to bay. Why?

The question will not be settled until several people in different parts of the state, by the remotest chance, come up with photographs of recognizable cougars in recognizable North Carolina habitat. Just one picture of just one such cat would be a wonder to behold, but that cat just could be a refugee from a traveling menagerie! ⬍⬍

**This portrait of the gentle-looking puma was supplied by the New Mexico Department of Fish and Game. It may be awhile before a photo of a North Carolina cougar shows up.**

PHOTO BY LUTHER PARTIN

# Help on the Way for Wood Ducks

**by Aycock Brown**
Manteo, N. C.

As part of a conservation program, Dare County Boy Scouts practiced modern resource management as they erected wood duck nesting boxes in a West Virginia Pulp and Paper Wildlife Refuge. This project was carried out in cooperation with Westvaco's North Carolina Woodlands and the North Carolina Wildlife Resources Commission.

Westvaco Forester George Henderson, Dare District Forester, and troop scoutmaster, and N. C. Wildlife Patrolman Larry T. Barnes, led several scouts on their first field trip last March to begin installing the artificial homes on 2,600 acres of protected area set aside by North Carolina Woodlands. This area lies on the Outer Banks, a popular meeting place for migratory waterfowl.

Earlier, the scout group assembled the wood boxes and studied the ducks and their migratory habits. The Outer Banks, a mid-point on the Atlantic Flyway between Canada and Florida, provides a natural meeting sanctuary for the waterfowl, because of its coastal position and proximity to the inland lakes and bays.

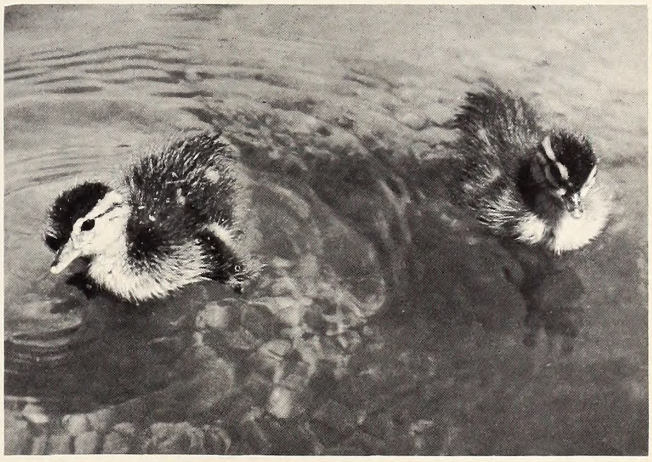
Westvaco's North Carolina refuge acreage consists of 17,000 acres, located in Dare and Tyrrell Counties, and additional refuges are being considered as part of cooperative planning with the North Carolina Wildlife Commission.

**Assembling nesting boxes for wood ducks as part of their conservation Merit Badge work are Manteo Troop 165 Scouts (left to right) Tim Creef, Paul Smith, Kevin Ginnis, and Warren Meekins. Supervising is Scoutmaster George Henderson, Dare District Forester for West Virginia Pulp and Paper's North Carolina's Woodlands; Wildlife Patrolman Larry T. Barnes is at left.**

Alvin McGowan and James Mann of Westvaco's Dare District resource management team erect an anti-predator post in a drainage canal where scouts will mount one of the next boxes. Above, the Scouts place one of the boxes on a large tree near the water. The Westvaco boundary marker just above the box was removed for fear it might frighten away potential tenants.

PHOTOS BY AYCOCK BROWN

Many of the nest boxes were placed on posts driven in the shallow waters of Dare County canals. This area is managed for timber production as well as being maintained as wildlife habitat. These young woodies say "thank you."



# A Walk on the Beach

by Nola P. Hobby

IT was a warm evening in the middle of June. The full moon was reflecting brightly over an unusually calm ocean on the North Carolina coast. My husband, our son and I were spending a few days at our cottage. Several of our friends were visiting us for the weekend. After supper someone suggested a walk on the beach. Although the moon was shining brightly, the women carried flashlights.

Ghost crabs are abundant on our coast, and they come out at night to feed on small shell fish and crustaceans. They are harmless, but stepping on one can be rather frightening. A little later we made very good use of our flashlights for another purpose. Someone walking near the edge of the water spotted some strange tracks leading from the water toward the sand dunes. They were three or four feet wide and looked much like the marks made by the tires of a farm tractor.

Curiously, we followed them to the edge of the sand dunes. Imagine our excitement when we came upon a huge green sea turtle. She was even more excited than we were. Realizing that she was quite disturbed by our appearance, we continued our walk on the beach. Stopping at the fishing pier, we told our experience to some of the people gathered there. One fisherman, who spends most of his time on the beach, showed a special interest in our story. Taking along a tub, he asked us to help him locate the spot where we had seen the turtle.

As we walked along, he explained that the mother turtle had come out to lay her eggs. Using her two front flippers, she scoops out a nest in the sand about two feet deep. After laying her eggs, she covers them with sand and returns to the sea, leaving them for the sun and the warm sand to hatch. The eggs are quite round, about one and one half inches in diameter, and have a soft shell. The number of eggs in the clutch is from a hundred to a hundred fifty. The eggs, as well as the baby turtles, are favorite foods of sea gulls and small animals.

Under favorable weather conditions, the eggs hatch some six to eight weeks later, and the babies instinctively head for the ocean. The hatchlings are only two or two and one half inches long, so it is easy for almost anything to prey on them at that age. It has been estimated that less than ten percent live to reach maturity. Not enough detailed study has been made to determine how many years it takes for them to reach full size, but many of them weigh as much as two hundred to three hundred pounds.

When we reached the spot where we had last seen the turtle, she had finished laying her eggs and hidden the nest very well. But she could not erase the tracks that she made as she went back to the ocean. We watched while the old fisherman carefully dug up the eggs, a hundred and forty of them, and placed them in his tub. Taking them to a spot near his own cottage, he buried them in the sand and added protective covering. For the next few weeks he would keep a close watch, and when it was time for them to hatch, people for miles around would come to watch while he placed the little ones on the sand and gave them a chance to at least make it to the water.

Unfortunately, we could not be there for the great event, but we are told that many people who spend their lives near the ocean never get to see as much as we did that moonlight night during what started out to be an ordinary walk on the beach.

A bill was passed by the North Carolina legislature that prohibits the taking or destroying of any sea turtles, their nest, or eggs during the months of May, June, July, August, or September. The bill received support from naturalists, who believe the species, especially the green sea turtle, may become extinct, since fewer and fewer are seen each season.

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Hunting, Trapping Rules to be Established June 11.

On June 11 the Wildlife Resources Commission will meet in Raleigh to establish the 1968-1969 regulations for taking furbearing animals and nonmigratory game. Regulations established by the Commission will be based primarily on the species concerned; their relative abundance, and their ability to progenate their kind for future hunters and trappers.

In establishing these regulations, the Commission will give due consideration to the ideas and opinions expressed by hundreds of outdoorsmen who attended a series of 10 public hearings between May 14 and May 24, but may be expected to follow conservation principles to the ultimate benefit of the people and wildlife concerned.

### Wait For Migratory Game Bird Regulations

Although seasons and bag limits on nonmigratory game and furbearing species will be set June 11, there will be a time lapse before seasons on doves, ducks, geese, and other migratory game birds will become official. Seasons and bag limits on migratory game are established by the U.S. Fish and Wildlife Service, and probably won't be announced until late summer. While doves, rails, woodcock, snipe, and sora are likely to be fairly plentiful again this fall, the waterfowl count will be determined largely by the availability of moisture this spring and summer in the northern nesting grounds. Outlook for waterfowl at this reporting is not encouraging.

### June is a Critical Month

During June much of next fall's harvestable supply of game is being hatched or born. This is the critical period, one during which people are urged to keep their canine and feline pets confined or at least curtailed. Stray or feral dogs and cats, plus household pets, are an important limiting influence on the supply of game for fall hunting.

# Spirit of a Nighthawk

by Ronald W. Tart

CLIMBING higher and higher with each successive flapping of its wings, the bullbat became a tiny dot wheeling in the late afternoon sunshine. Suddenly, it folded its wings and came plummeting toward the ground like a supersonic dart. At the last instant, it spread its powerful wings downward and came out of the scorching dive with a loud rush of air that could be heard for a quarter of a mile. Then it circled lazily around the field catching bugs and flies for its evening meal. The midsummer afternoon was typical for North Carolina, pleasantly warm and still. The sun's golden disc gradually sank behind a dreamy stand of long-straw pines, and the evening light faded in its wake. Other nigthhawks were out too, circling, climbing, and diving in their normal feeding patterns.

Very graceful in flight, the nocturnal feeders conveyed a feeling of contentment and peace to those who watched. A person with a fanciful imagination could become enchanted at the vision of climbing high into a warm golden sunset and circling lazily over the countryside. Imagine gliding over scented pine woods where the yearning cry of a forlorn whip-poor-will enhanced the spell. Or soaring over a small mirror-like farm pond that reflected the leaves of stately poplar trees veiling a blue evening sky.

The nighthawk flapped its wings lightly as it was lifted by an angel-soft updraft, then slipped into a swift glide over a deep growth of lush swampland. Somewhere below there flowed a murmuring stream with lily-white and pink honeysuckles growing in heavy profusion upon its banks. A raccoon family gathered nearby was swishing fresh clams in a deep eddy as they prepared for their nightime meal, and a great horned owl sat unseen on a sturdy oak snag as he voiced a tremoring nocturne to all who listened.

DRIFTING away from the swamp, the nighthawk floated over a grass-strewn pasture where several pigs were busily feeding from a trough, and the weary farmer who had fed them plodded slowly up the hill as he looked forward to the relaxing evening peace. A field of soybeans slid beneath, and a cottontail casually hopped down a bean row, stopping occasionally to munch on an especially succulent clump of grass. The bullbat circled lower as a fox barked sharply in the nearby swamp.

A dark object streaked over the gravel hole below as a late-homing woodpecker darted above the pine seedlings growing there. Another farm pond drifted underneath, and five wild ducks circled to land, making little dimples in the water as they settled upon its surface. A startled frog made a tiny splash as it leaped into the shallow water and swam away. And widening circles spread from the pond's center where a feeding bluegill nosed the surface. A shadow silently detached itself from the nearby grass as a sleek brown mink glided to the water's edge for a drink.

The screen door of a nearby house slammed, and a boy ran past a tractor and a tobacco barn to disappear into the corn field growing beyond. The nighthawk was over a cotton field as it climbed aloft and spiraled over the tiny trees and buildings that were etched on the magic canvas below. Thousands of lightening bugs twinkled in the darkening woods, making it seem as if a mischievous pixie had sprinkled the land with glittering stardust.

The sun was below the horizon to the west, and a ruddy moon had crept partially over the horizon to the east, bringing with it the melodious chirpings of millions of crickets. The bird gathered in its wings and plunged downward through freshening night air, then swooped out over the field to glide in low circles. As the sun's afterglow diminished and a light breeze sifted through the cotton leaves, the deep vibrant songs of a multitude of bullfrogs gave a resonant welcome to the nightfall.

The youngster who had darted into the cornfield was now standing in the edge of the cotton patch with a shotgun. He watched the bird with excited eyes as it circled over the field and gradually came nearer. He sensed the wonder of scenic peace and joy that possessed the night hawk's spirit and the freedom that it displayed in flight, but it all seemed intangible to him. He wanted to grasp the fullness of the bird's winsome spirit, and he thought that by holding it in his hands, he could realize the richness

• **continued on page 27**

# Passport to FUN!

SECRETARY of the Interior Stewart L. Udall urged broad citizen support of Operation Golden Eagle, the Government's program designed to provide more outdoor recreation opportunities through the Land and Water Conservation Fund. The Fund derives revenues from Federal recreation fees, the Federal motorboat fuels tax, and the sale of U. S. surplus real property.

"We are proud to start the fourth year of this important nationwide conservation effort," Udall said. "The success of this program depends in large measure on the support it receives from citizens across the Nation. It is my pleasure to report that support of the program has grown consistently since 1965."

Udall pointed out that in the last three years, fees at Federal recreation areas had produced more than $26 million for the Land and Water Conservation Fund. Of that amount, $10 million was derived from the sales of the annual $7 Federal recreation area permit, popularly known as the "Golden Eagle Passport."

The wallet-size Passport will admit its purchaser and all traveling with him in a private automobile to any or all of more than 3,000 federal recreation areas ordinarily entered by automobile.

Valid for a full year starting April 1, the 1968 Golden Eagle Passport went on sale in March at entrance points to Federal recreation areas, numerous Government offices, through many clubs and offices of the American Automobile Association, through credit cards offered by a number of petroleum companies, at department stores, and through other organizations.

Following is a list of permits that will be available for persons visiting designated recreation areas administered by the National Park Service, Forest Service, Corps of Engineers, Bureau of Sport Fisheries and Wildlife, and Bureau of Land Management:

(1) The $7 Golden Eagle Passport—valid nationwide on an annual basis for the purchaser and all accompanying him in a private, noncommercial vehicle to all designated Federal recreation areas requiring an entrance fee.

(2) A $1 daily vehicle permit for the purchaser and all accompanying him in a private noncommercial vehicle for entry at **one** designated Federal recreation area.

(3) A daily 50-cent permit for use by an individual entering **one** Federal recreation area by means other than a private, noncommercial vehicle.

The Corps of Engineers also will provide a $3 short-term seasonal vehicle permit valid at **one** of its designated Federal fee areas for the purchaser and all accompanying him in a private, noncommercial vehicle.

Areas where fees are charged must be administered by a Federal agency primarily for scenic, scientific, historical, cultural or recreation purposes, have recreation facilities or services provided at Federal expense, and be of such nature to make fee collection practical. Designated fee areas must be clearly posted to show that Federal recreation fees are required.

Federal land managing agencies and the Bureau of Outdoor Recreation have produced a new pocket-size booklet listing more than 3,000 Federal recreation areas where entrance and user fees are charged and where the $7 Golden Eagle Passport is valid for entry.

The publication lists Federal recreation areas alphabetically by States. Each agency's designated list shows which permits are valid for entry to individual areas and whether special user and service fees are charged.

Land managing agencies and the Bureau of Outdoor Recreation also have produced a pocket-size Questions and Answers booklet that describes Operation Golden Eagle and gives details concerning Federal recreation fees. Both booklets are available upon request to Federal agencies, and will be sent to purchasers of the Golden Eagle Passport. Address: Operation Golden Eagle, Post Office Box 7763, Washington, D. C. 20044. Purchasers are reminded to enclose a check or money order in the amount of $7 payable to the Bureau of Outdoor Recreation.

Ralph Andrews, Director of the North Carolina Recreation Commission, announced recently that the Carolina Motor Club (AAA) would assist the State of North Carolina in promoting Operation Golden Eagle this year.

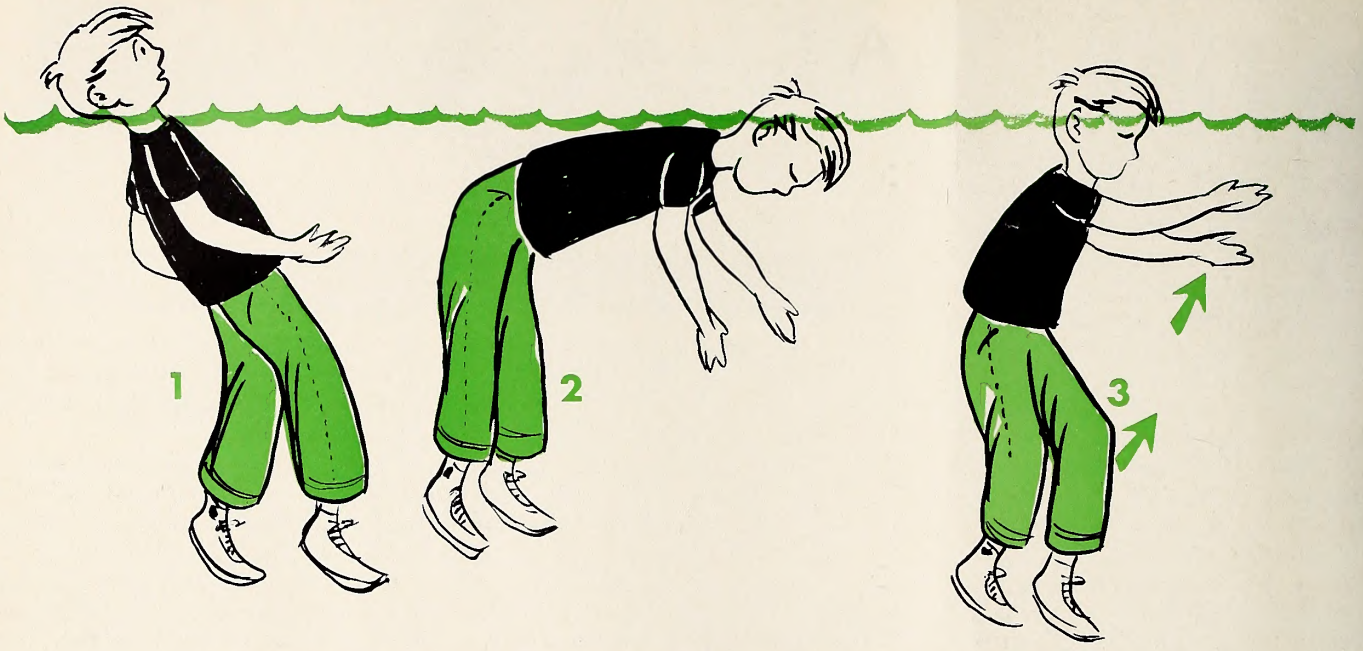
Andrews said the Carolina Motor Club would handle the sale of Golden Eagle Passports through the organization's nine offices located throughout the State.

The annual Golden Eagle permit can be purchased from any of the Carolina Motor Club offices located throughout the State or by writing: Carolina Motor Club, Post Office Box 60 in Charlotte. The permits can also be purchased at the entrance to the designated recreation areas.

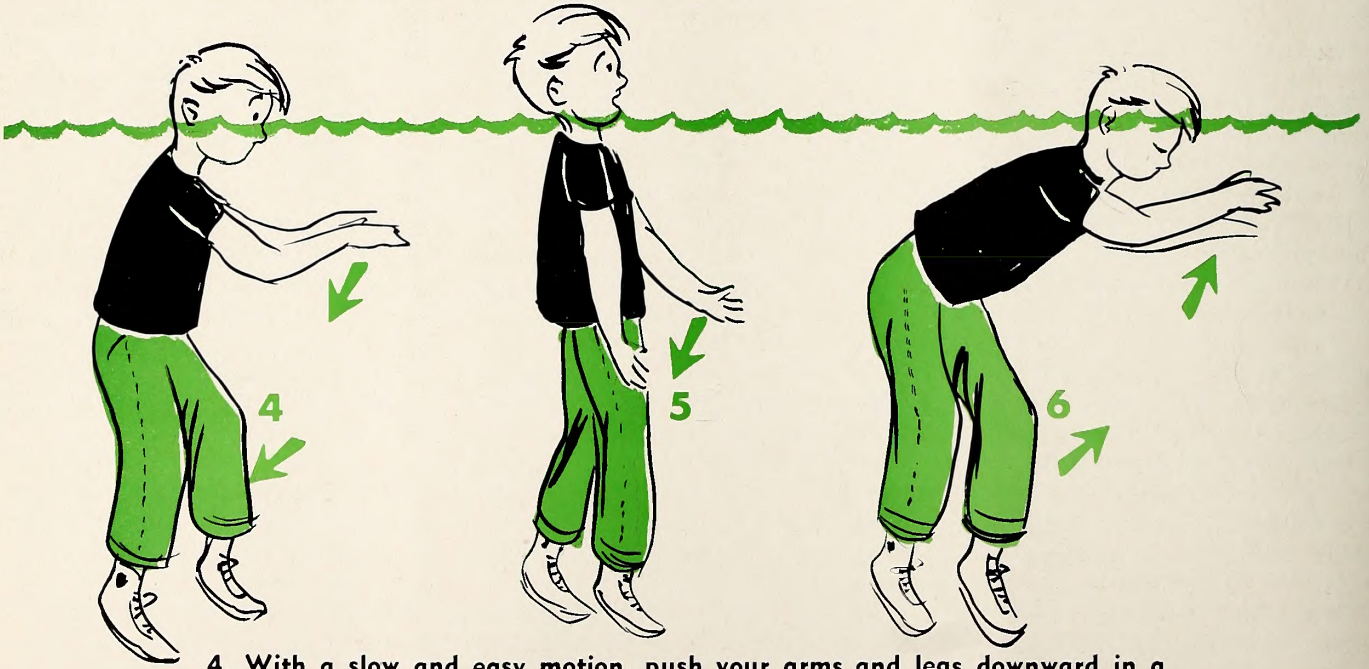
The Golden Eagle passports are valid in several North Carolina areas including the Blue Ridge Parkway, Cape Hatteras National Seashore, Fort Raleigh, the Great Smokies, the John H. Kerr Reservoir and the W. Kerr Scott Reservoir.

# DROWN-PROOF YOURSELF

## Makes Drowning Obsolete!




By following the advice in these diagrams, you can make drowning obsolete! It really works. 1. Relax; don't panic. Take a deep breath, and don't try to hold more than your chin out of water while doing so. 2. Let yourself slide beneath the water as your eyes remain closed and your breath is held. You'll sink down a bit, but remember, as long as your lungs hold air, you will bob back to the surface. If you relax, the water will hold you up. 3. Still relaxed and not struggling, slowly bring your arms up toward the surface. You may find it helps to cock one leg forward also.




4. With a slow and easy motion, push your arms and legs downward in a semi-swimming motion. At the same time, raise your head just enough to get your face above water. Don't try to get more than your face above the surface, and let the water continue to hold you up. 5. Release the air from your lungs slowly, give a last push with your hands to expose your mouth above the surface and breathe in slowly through your mouth. Breathe in only once, at each surfacing and don't gulp; you might choke. 6. Hold your breath, and let your face sink downward, relaxing your body. Your arms will come up without effort, and you will ride the water until the next push. The secret is to remain relaxed and calm.

# The "Buffer Zone" Concept—A Re-evaluation

**by Frank Barick**

*Chief, Division of Game*

THE "buffer zone" concept was developed many years ago in conjunction with the establishment of wildlife management areas on U. S. Forest Service lands. This concept defines a buffer zone as an area of public land that adjoins a wildlife management area and that is open to public hunting without special permit. The idea was to provide for such buffer zones in conjunction with the establishment of wildlife management areas, thereby creating a hunting area not only for those who could afford the management area fee, but also for those who felt they could not afford it.

This idea has worked well for many years around most areas but recent events raise questions about its validity under certain circumstatnces. It now appears that hunting pressure on some buffer zones, especially those that are fairly narrow, can develop into a no man's land which stays dry-cleaned of all wildlife. The question arises therefore, as to whether we should not eliminate buffer zones where this is happening by incorporating them into the adjoining State-controlled wildlife management area or providing some other type of control which would preserve the quality of hunting.

Several examples may be cited where over-hunting of buffer zones has occurred. Some of the most notable are around the Pisgah and Sherwood wildlife management areas. Several years ago we posted what was then the Stony Fork Section out of Pisgah. According to local reports, it was immediately flooded by buffer zone hunters and practically all game was exterminated. In response to demands by responsible local sportsmen for imposition of controls, the area is now designated as the Beaverdam Game Restoration Area. Hunting is restricted to three days per week during the hunting season, and a special season permit is required. According to latest reports these restrictions have resulted in quality hunting again.

Other examples of over-hunting have been reported adjoining the Fires Creek and Rich Laurel wildlife management areas. Complaints have been registered about the lack of overflow from both of these areas. In both cases, there are narrow strips of Forest Service land outside the boundaries on which the game appears to have been severely decimated.

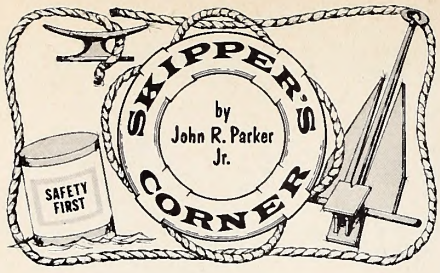
While the Beaverdam Section encompasses several thousand acres and warrants establishment as a restoration area, there are many small strips of buffer zone that do not warrant such special designation. In these locations, it would appear reasonable to put them into the adjoining wildlife management area.

One might criticize this arrangement as being of special benefit to the adjoining private landowner. This may well be the case, but if that landowner is interested in wildlife he is also providing hunting, and his protection of the wildlife provides for further extension of the overflow beyond his property. The game does not have to pass through a no man's land of excessive hunting which in effect acts as a barrier to overflow. As an example, we cite the Uwharrie Wildlife Management Area in the central part of the State which is ringed by landowners that lease hunting rights to individuals or clubs. They cooperate so effectively in wildlife protection that the deer herd has spread for many miles in all directions from the area.

The other solution, where there is a large block of Forest Service land, would be to designate it as a game restoraton area, such as Beaverdam, and hunt it by season permit on a restricted schedule of dates within the open season framework.

The problems created by the buffer zone concept have not been restricted to the western part of the State. A few years ago regulations provided for free hunting on outlying tracts of the Sandhills Wildlife Management Area. In addition to the dry cleaning effect, this resulted in many complaints from adjoining landowners who said they were being overrun by "State" hunters. When the permit requirement was reinstated on these areas and the hunt date schedule was modified, utilization actually increased and the complaints ceased, and last year about three times as many deer were harvested on the area as back in the days of free hunting on outlying tracts.

Some text books define wildlife management as being 95 percent "people management" and only 5 percent involved with wildlife. We would modify this to say it is 95 percent "people *cooperation.*" We who are privileged to serve the public in the field of wildlife management are constantly exploring ways to improve and expand hunting opportunities. Thus, the purpose of our essay is to air this problem and to solicit the considered opinion of our good sportsmen in regard to it. ⬍⬍




BOAT purchase is a popular subject for writers and through the years some good rules have been set down for us to follow. Usage, waters frequented, amount you can afford and storage are things to consider. Actually, all should be considered when buying your first, second or third boat.

And incidentally a boat has been defined as a depression in the water, filled either with wood, fiberglass or aluminum and into which one continues to pour money. This is one way of describing man's never-ending problem of keeping his boat in good repair and safely equipped. But even though that "depression" often seems bottomless, most of us would have a kinder expression with which to describe our favorite cruiser, skiff or whatever.

My purpose, however, is not to suggest where you can get the best deal on a depth finder or a gallon of topside paint. I want to offer a few ideas on what might be termed, "fleet development."

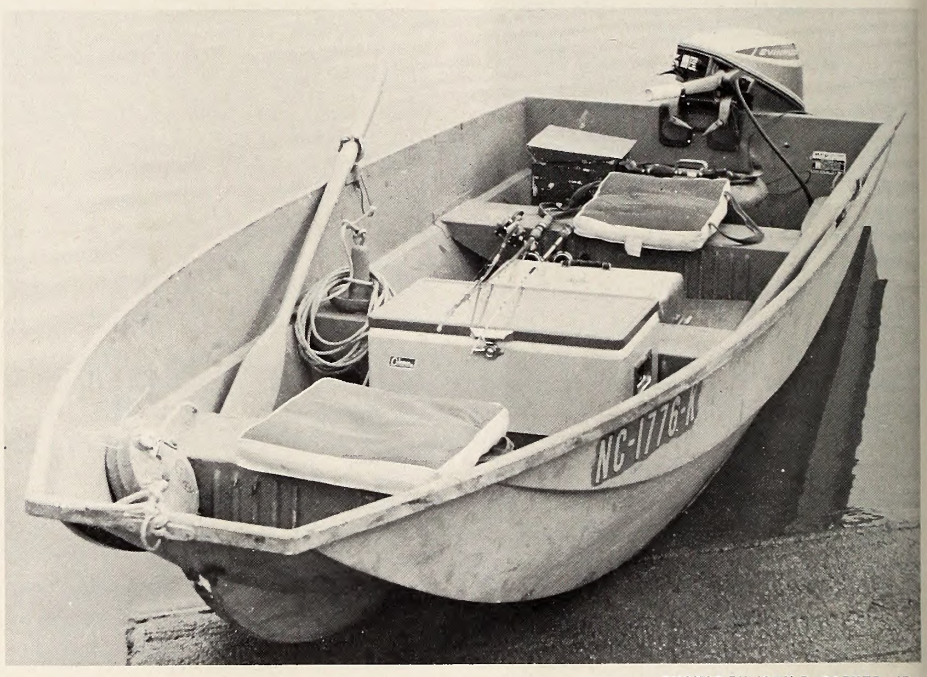
That's right, the industry says two and even three boat families are increasing. In other words, if you buy one boat now, you probably would not want to spend a fist full of money for a second boat only to find that it won't allow you to do anything different.

A boating editor for one of the popular outdoor magazines says he owns nine boats. Somewhere along the line, such luxury might backfire. Instead of not having the right boat, one might be confused about which one to use. But I feel certain the fellow manages. Such confusion would be welcomed. Wow—nine boats!

Of course, few of us would have time to care for or a place to store such a number of boats even if we could afford them. The questions arises, how many boats can the average outdoorsman put to *good* use.

If your boat use is restricted to pulling skiers, then your purchase problem is easier to solve. Any one of the beamy 14 footers with sufficient power, say 60 horsepower, will do. If you're going to use the boat for skiing and family cruising, better step up to a "big 16" with adequate power.

On the other hand, if your choice is fishing the creek near home, any one of several dozen variations in small fishing boats is yours from which to choose. Here, I would recommend you stay away from the coffin type creek boat. Even if it is to be homemade, make sure the dimensions are in the area of 4 x 12. Sure the 8-and 10-foot prams are fine for special service. They ride fine in the station wagon but not




PHOTOS BY JOHN R. PARKER, JR.

**This MFG 12-footer (above) is a good example of the deep, stable fishing craft now available. The 9½ horsepower motor offers trolling as well as good cruising speed. The rig can be trailered or car-topped. Below, the author's Sea Skiff is at home on the coast or inland reservoirs. Electric starting motor makes constant maneuvering for bass fishing practical.**

so well on the open lake. That mention reminds me of the three fellows sighted chasing crappies on a lake near the Capitol City in a 10' or 11' John-boat. At a distance, you could see people and motor but no boat! Did I hear one of them say, "trouble here we come?"

But suppose you are not just going skiing or just going creek fishing, what next? You know, it takes no effort at all to develop the urge to cruise new water. The walleyes in Fontana are mighty enticing. Then, so are the Spanish mackerel out Beaufort Inlet. Then comes winter and it's time for setting out decoys on the Pamlico. And what's best for chasing bass, all over?

So much for the questions.

After giving thought to all of the above I have come up with what I think would suit me, having a liking if not the bank roll for the variety of water-oriented sports available in the Old North State.

Briefly my list would include a 17-foot canoe, a big 14-foot utility, and a 20-foot offshore runabout or day cruiser. Boat length might vary on each a foot or so. But these small craft (or something similar) could, I feel, carry the most ardent outdoorsman to the limits of his interest (within reason, of course).

In one form or another, the canoe has been serving this Nation for hundreds of years. It is still a very useful and practical craft for the outdoorsman. Float trips for the fish of your choice, drift shooting for duck or squirrel, camping, or just fun trips are a few of its uses. The canoe can also double as a pond or light utility boat and as you know, larger models will safely accept small motors. What material? While aluminum is still the lightest and the toughest, fiberglass is no fragile thing. The wood and fabric models will also last and last with proper care. It all depends on the use and your own preference. As for length, I would prefer at least a 15 footer. And would probably go to a 17 footer for greater capacity and stability. Yes sir, for ease of handling and enjoyable simplicity in boating, it's hard to beat a canoe. (Too much for this, but we seldom get around to discussing this useful craft).

The workhorse of the small craft family, in my book, is the open utility. They come in many shapes and sizes and are available in all of the popular materials. The utilities are available with or without remote controls, storage compartments, navigational lights, etc. Naturally, these useful additions increase the price. One of the most important factors is size. For example, my MFG 12 footer has served well. I feel quite safe in it even in choppy water. It's deep and stable. But if I were to make the purchase again, I'd probably go to the 14 footer, in the same make.

The 14 will comfortably carry the third fishermen or more decoys, etc., and is still almost as easy to handle. Of course, 12 footers are a little easier to car-top carry. But since I keep mine on a trailer, I figure I coud handle a larger boat equally as well—even under difficult conditions. Whatever you decide, I recommend that the craft at least have oar locks, drain plug, adequate flotation and good depth. If you plan to use the rig on sounds or large lakes, the 15 or 16 footers will be even safer and will run nicely with 18-20 horsepower.

The utility, as its name implies, can be used for anything from unsophisticated family cruises to a duck hunting platform. And if you enjoy variety in your boating, you can well use a utility.

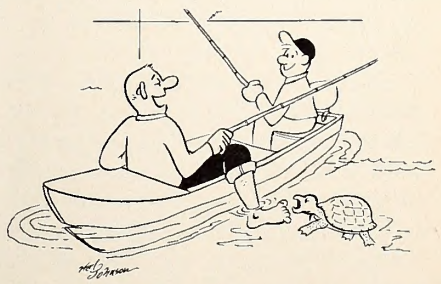
On the costly extreme of my ideal list is the offshore outboard or inboard-outdrive. Again the offering is full of variety. First let us again consider use. This big brother to the smaller runabout is not too big itself for towing skiers. There is more leg room on an all day lake cruise. And if you are headed out an inlet, man that's where you really appreciate size.

There are many factors to consider: outboard power versus inboard-outboard drive, hull material, hull design—conventional or trihull, how many extras, and cabin or open. If I were to buy such a boat today I would be a little hesitant on the latter consideration. The cabin models offer cozy home away from home comforts. The temptation would be considerable. However, since I am more of a fisherman (I hope) than a sleeper or card player, I would probably choose the open model. Specifically, I would choose such a boat in a 19-22 length, with vee bunks and hidden toilet under the bow. For foul weather cruising or camping, I would reply on canvas. Most manufacturers offer, at extra cost, convertible tops, side and aft curtains and a camper top which encloses the entire after section of the boat. Since I am more familiar with outboards, I'd probably choose twin medium-range motors for a boat in the 20-foot class. And, of course, equip her with all the standard safety equipment heretofore discussed.

Well, there are a few of my ideas on small craft that a busy sportsmen might put to good use. You will no doubt see things differently. We have touched on basic, useful types. There has been little or no mention of the multitudes of special purpose boats.

In trying to offer suggestions where boats serve well for more than one use we have failed to mention some standards. A 16-18 foot John-boat may be best if all of your activities take place on a stream where no rough water is encountered, for example.

In all of this, one thing, I trust, has been brought out. Buy the largest, quality rig you can afford. Seldom is the boater unhappy because his boat is too large. It is usually the other way around. Seldom is the boater in trouble or caught dead who sensibly uses a stable, properly loaded craft. ▲▼



**"A guy at the landing said that we'd probably catch a few turtles."**

# How Fish Feed

**by J. H. Cornell**

*Chief, Division of Inland Fisheries*

TO learn how fish feed, take a look at a fish's digestive system and see how the food is used. In all animals the digestive tract consists basically of some sort of stomach and an intestine, with an opening at one end to take in food and one at the other to get rid of the unused portion. In different groups of animals, depending on the complexity of their development, other organs are added to this system to supply digestive juices. These prepare the food elements for use by the body. They dissolve the food to be used into a liquid, so it can pass through the walls of the intestine and be picked up by the blood stream. The blood carries it through the body for use where it may be needed.

In the fish, we find that the organs concerned with the digestive system are amazingly like our own, both in function and appearance. To begin with, nearly all fish have teeth. The teeth are different from ours in that they are outgrowths from the skin and really are a part of the skin. In different fish, the teeth have many different shapes and locations depending on the preferred diet of the particular species.

Some fish feed on plants exclusively and are equipped with teeth to bite off fragments of plant material. There are others that feed on both plants and small animals. Their teeth seem to be designed for holding as well as cutting.

But nearly all fishes are carnivorous. All carnivorous fishes eat other animals, which apparently have some objection to being eaten, and which naturally make more or less strenuous efforts to escape. These fish are characteristically equipped with several sets of sharp teeth designed for killing or holding the prospective meal in place while it is being swallowed. The more voracious a fish is, the more sharp teeth it is likely to be equipped with.

Fish do not have their teeth arranged in neat rows on jaw bones the way ours are. Some of the marine fishes have an impressive row of teeth at the front of their mouths, but most fishes have patches of teeth on various bones inside the mouth cavity. Some even have teeth on their tongues. Some fish prefer a diet of animals which wear shells, such as fresh water snails. These usually have heavy flat grinding teeth in their throats to crush and separate the shells before the contents are swallowed.

ONE of the main problems a fish has in swallowing food is that it also must breathe through its mouth. Nature failed to provide a connection from its nostril to its throat, and so it must always decide whether it should use its mouth for eating or breathing. Obviously it does not chew its food, or it would suffocate, But Nature did not intend the fish to chew his food. His tongue is just a piece of gristle, and he has no glands in his mouth to produce saliva as we have. He just swallows.

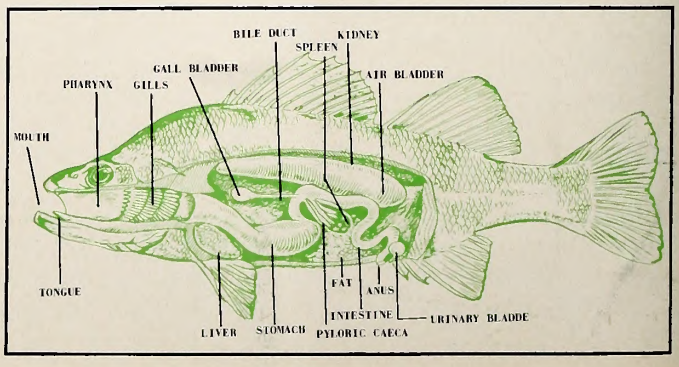
We know that the fish must take water in his mouth and pass it out over his gills in order to breathe. To protect his delicate gill filaments from damage by food that is in the process of being swallowed, Nature has provided the fish with structures called "gill-rakers." These are bony projections from the gill arches that serve to strain out the food material from water passing over the gill membranes. The fineness of the gill-rakers depends on the size of the particles of food which constitute the principal diet for that particular species of fish. The ones that feed on little one-celled plants and very small larvae of aquatic insects have fine gill-rakers, like a comb. The fish that feed on other fish have coarse heavy ones.

Like our own digestive systems, the first structure found behind the mouth of a fish is the pharynx. This is a constriction in the throat which opens only when the fish is actually swallowing food. It prevents water from entering his stomach during the breathing process. Were it not for the pharynx, the fish could not digest his food. The continuous flow of water would dilute the digestive juices, and his stomach would be just like an aquarium with live fish in it.

Most fish eat other animals. Since these animals are usually alive when they are swallowed, the fish must have digestive juices which begin to work on a meal very quickly and thoroughly after it arrives in the stomach. Digestion is carried on in a manner very similar to that found in humans. The fish has a spleen attached to the stomach and a liver which supplies bile. In many species of fish the liver has a gall bladder attached to it just as we have.

In some few species of fish, such as gizzard shad which feed on particles of vegetation, the stomach

**This is a diagram of the basic elements of a fish's digestive system and associated organs. Each has a function.**



has a muscular wall to grind up the food so it can be digested. This stomach is very similar to the gizzard of a chicken. Nearly all species of fish have projections from the stomach wall at the point where the intestine is attached. These projections are hollow tubes, like the fingers of a glove, and are called "pyloric caeca." It may be that they provide additional absorptive surface for the passage of nutrients from the stomach into the blood stream, but it is believed that their principal function is to aid in digestion by the secretion of a digestive fluid into the digestive tract. The size, shape, and number of caeca are sometimes used in scientific identification.

Just as is true in the higher animals, the length of the intestine in fish is an indicator of the type of food the particular species of fish uses. Fish which are carnivorous usually have a short intestine. This is true of trout and bass. Fish which feed on plants have a much longer intestine to provide more time for the more difficult break-down and absorption of plant food materials. In the stone-roller minnow, for example, the intestine is so long that Nature has arranged it wound spirally around the air bladder. This need for a long intestine among animals which feed on vegetation is demonstrated by the relatively short intestine of the meat-eating dog compared with the long intestine of the grass-eating cow.

NOW that we have seen what the fish does with his food after he gets it, and how similar his digestive system is to our own, we might consider how he locates his dinner in the first place. All fish have a sense of smell that is more or less important in locating food. He has nostrils exactly where we would expect to find them—on the front of his face. The nostrils actually are small holes in the skin between the mouth and eyes. They are not connected to the throat, but are simply tiny pouches lined with nerve-ending cells sensitive to odors. Nerves carry the messages from these cells directly to the brain.

One might argue that this is a sense of taste rather than smell, especially since the tongue of the fish is simply a piece of cartilage and has no taste buds. Actually, the sense of smell in any animal is nothing but taste operating at a distance. If you will close your nose completely so that no air can pass into your mouth, you can hardly tell the difference between a piece of onion and a piece of raw potato unless you can feel the difference in structure with your tongue. It really makes no difference whether we say the fish has a sense of smell, or taste or both.

Some species of fish depend mainly on their eyes to locate food, particularly those that pursue moving prey. This is true of most of the game fishes, such as the trout and the bass. They have nostrils, but usually there is little time to use them when their dinner is making every effort to escape. Catfish, on the other hand, feed principally by scent. Except for the channel cat, this group of fishes makes little effort to pursue moving prey, but more frequently acts as a scavenger by feeding on dead organic matter. To them the sense of smell is most important. Catfishes have developed an auxiliary sensory apparatus to increase the efficiency of their organs of smell. They have barbels, frequently called "chinwhiskers," which carry additional sensory cells to assist them in finding food. It may be for this reason that they can live in water which is frequently so muddy that a fish like a bass, which feeds by sight, would starve to death.

One of the most interesting aspects of how fish feed is the effect of temperature changes on the amount of food they can use. We know that fish are "cold-blooded" animals in that the temperature of their body is very close to that of the water in which they live. If your body temperature changes as much as one degree, you feel ill. If it changes two degrees, you are really sick! The poor fish, who has no temperature regulator, must survive a change of 50 to 60 degrees from summer to winter.

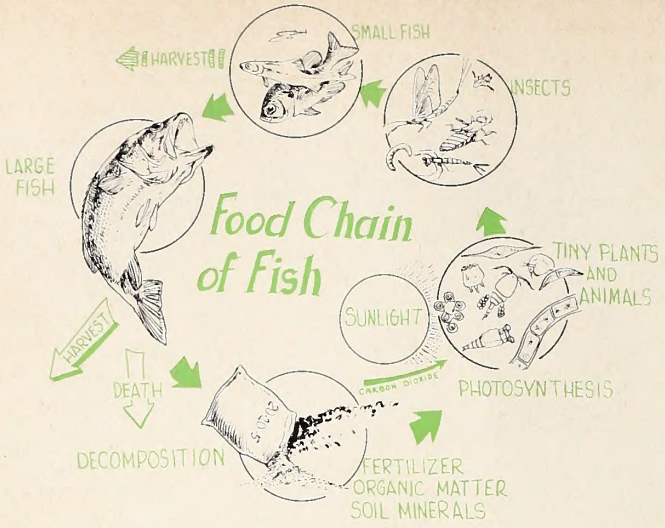
Each species has a preferred water temperature —a temperature at which they seem to be most happy, feed most extensively, and grow most rapidly. For the largemouth bass, for example, this temperature range is between 70 and 75 degrees Fahrenheit. Within that range his digestive processes are carried on most efficiently and he has the greatest need for food. He will eat a half-dozen minnows for breakfast and be ready for more by supper time. But when the water temperature drops to the 40 to 45 degree range, he may eat one minnow for breakfast and not be hungry again for several days. The remains of that minnow may still be in his stomach a week later because his digestive operation is extremely slow in such cold water.

It is this change in the rate of growth which makes it possible to judge the age of a fish. As a fish grows, its scales must grow fast enough to keep its body covered. During the summer the scales grow rapidly, but during the winter they grow scarcely at all. This results in the growth rings on the scales which show the number of winters a fish has lived through.

WE know that all food eaten by animals must originate from plant life. All of the food in the world results from the marvelous chemistry of sunlight, cholorophyl in living plants, and the nutritive elements absorbed by plants from the soil, water, and air. Chlorophyl transforms or manufactures these basic ingredients into useable food, with sunlight furnishing the energy to do the job. This is why we put fertilizer in a pond.

The fertilizer, as such, is of no direct value to the fish. Nutrients in the fertilizer dissolve into the water where they can be absorbed into the cells of plants so tiny a microscope is needed to see them. Just as a potato plant stores up starch in its roots, these plants store up starch and sugar within their cells. So many billions of them grow in a well fertilized pond that the whole pond looks green.

In a fish pond are billions of tiny animals that feed on these microscopic plants. Even these are so




small that many of them cannot be seen without magnification. These are protozoans and rotifers that eat and digest the tiny plants much the same as a bass swallows and digests a minnow.

In turn, these tiny animals, many composed of only a single cell, furnish food for still larger animals such as the copepods and water fleas. You can see these in the water if you look carefully; and this group of animals supplies food for aquatic insects in the larval, nymph, or adult stage, such as mayflies, dragonflies, and others.

Now the very small fish, when they first absorb the yolk sac and start to feed, eat some of the very small animals in the pond. As they grow larger, they eat the larger insects and their young. The bream in the pond remain insect feeders all their lives, although the large ones do eat some very young and small fish.

Actually, the bream probably has no objection at all to having fish for his dinner instead of the usual insects. It is just that his mouth is too small to eat any except the very smallest fish. The young bass, too, eats the same food as the bream. But when his mouth gets big enough he will eat any fish he can swallow. He eats the larger bream, and does not hesitate to eat the smaller bass when he can catch them. And as the bass gets larger, he serves as food for man.

This complicated sequence of food, starting with plants which are eaten by small animals, and which are in turn eaten by larger and larger animals, is called a "food chain." When the large animal dies and his body decomposes, the nutrient elements which made it up are again released into the water and soil for use by other plants, and the food cycle, completed, goes on forever. Every living thing, plant or animal, is a part of this cycle. ⬍⬍

# Stable Water Level Improves Wet Woodlands

TIMBERLAND owners in the Dixie Soil and Water Conservation District of Florida are beginning to install water-control systems in their wet woodlands to improve the growth of valuable hardwoods, make sites more favorable for pine, and provide year-round accessibility for harvesting marketable timber.

In response to a request from several cooperating landowners, the Soil Conservation Service prepared a plan for the Pumpkin Swamp area near Cross City embracing about 34,000 acres of cypress, hardwood, and pine flatwoods.

The Hudson Pulp and Paper Corporation has begun work on a 15-mile-long main channel following natural drainage lines. Lateral channels will be added to carry excess surface water from the entire area.

The swamp will not be completely drained, however. Channels will contain control structures to stabilize the water level. The result will be favorable moisture conditions for tree growth the year around, rather than alternate flooding and drying as in the past.

SCS engineers planning the system were able to take advantage of an unusual natural feature of the terrain—a hard layer of rock, clay, and marl near the surface—to provide for control structures in the channel at low cost.

Since the channel bottom, for much of its length, would be excavated in this hard layer, it was a simple matter to leave the material in place at strategic points to control the water level. The backhoe operator, according to plan, raises the bottom of the channel to the specified level for a few feet, then resumes the deeper excavation.

Cecil James, district forester for Hudson Pulp and Paper Corporation, believes the water-control program will make the swamp a better habitat for fish and wildlife, as well as aiding timber production.

After the system is installed, deer and other game will have year-round water supply in the area. Before they were forced to leave during extended dry periods.

Fish will thrive because of the constant water level in the channels, whereas formerly surface water completely disappeared from most natural channels—Edward D. Holcombe, *woodland conservationist, SCS, Gainesville, and* James W. Norris, *agricultural engineer, SCS, Lake City, Fla.* ⬍⬍

### How Big?

DEAR SIR:

The period of waiting between the time that some of the dogs are put out and time the fox is jumped is often a time for deep discussions on politics, finance, peculiarities of nature, and many other varied subjects.

During such a time last weekend I casually mentioned having read (in Raymond L. Ditmars' Field Book of North American Snakes) that the Eastern Diamondback was one of our largest snakes and Mr. Ditmars said the largest one of these that he had personally checked out was one that was a little longer than 8 feet with a girth a little in excess of 8 inches. Mr. Ditmars further stated that this snake weighed a shade over 16 pounds. This last bit of knowledge was what threw the fat into the fire. Now I, personally, have never encountered many rattlesnakes (for which I am thankful) but it soon developed that Mr. Ditmars and myself were the only two people that had not seen a rattlesnake that weighed at least 40 pounds and one fox hunter present had roundabout knowledge of one that weighed as much as 70 pounds. Please note that the discussion ran more to heft than length.

Mercifully the dogs jumped the fox before the discussion got too heated but things were left without reaching any conclusion, if indeed such a possibility ever existed. I would like very much to get some idea about this for my own personal satisfaction from some new authority. I am sure that any such new authority will receive the same treatment from this bunch as Dr. Ditmars but it will make an interesting conversation piece while waiting for the music to start.

Yours very truly,
C. Johnson Harriss
Wilmington

DEAR MR. HARRISS:

The eastern diamondback is generally considered the largest of the rattlesnakes. The presently accepted maximum length of this species is about eight feet. Unfortunately I cannot claim to have seen a specimen even approaching such dimensions and am inclined to doubt if such a snake exists in any of the scientific reference collections.

Accurate figures of rattlesnake weights are rare. Ross Allen, of Silver Springs, Florida, who probably has seen and handled as many eastern diamondbacks as anyone, reported that the largest specimen ever examined by him measured seven feet, three inches and weighed 15 pounds. Larger specimens have, however, been authentically recorded. The weight of a rattlesnake greatly increases with length so that an eight-footer conceivably might weigh 20-odd pounds.

Incidentally, diamondbacks are now rare in North Carolina and we would be glad to receive native specimens. Perhaps some of your fox-hunting companions would consider collecting some for us, or advise me where I might find even an 8-pounder!

Yours very truly,
W. M. Palmer
Curator of Zoology
State Museum of Natural History

### The Other Side

DEAR SIR:

Your magazine is a strange composite of love of nature and the killing of it. It is really confusing to find an artcile on conservation on one page followed by one on hunting on the next.

There is no need for man to kill a wild thing, unless his life is in jeopardy. If a man has to kill to prove his manhood, he must be very unsure of it in the first place. Nature can be enjoyed by just breathing and looking at it.

North Carolina is a beautiful state. You have mountains, lakes, forests and even a seacoast. Please let the animals live it it and enjoy it, without them nature is incomplete.

Hunters: Try to let off your aggression in another way.

There was one shocking picture in the January issue on page 26. It was a picture of two boys, with guns, holding a dead squirrel they had killed. These kids were only about 8 or 9. Why should they be encouraged to kill a living creature?

You'll never know what you've got until it's gone.

Peace,
James Davis,
New York, N. Y.

DEAR MR. DAVIS:

Some people simply cannot seem to understand that you can't stockpile game and fish like you can cotton or corn or cast iron. Are wild creatures, morally, any better than domestic livestock? Domestic animals and birds rarely kill each other. Wild creatures do.

Isn't it more cruel to keep poultry and sheep and swine and cattle in pens for the sole purpose of eventual slaughter and consumption by humans than it is to bag a quail or a deer that at least has a flying or running chance of getting away?

In North Carolina our hunters kill about three millions each of doves, rabbits, and squirrels each year, yet each fall we have another bumper crop of these species for the hunting season.

And who foots the bill for conservation of wildlife? The bird watcher with his field glasses and notebook? Not at all! It is the agressive, blood-thirsty, license-buying hunter; and part of his license dollar goes to protecting the dickey birds the bird watchers love so well.

Is starvation more humane than a .30 caliber rifle slug? If deer herds in forest areas were not kept under control by hunting, they would destroy their food supply and die of starvation by the hundreds of thousands. This has happened in the past and would happen again if well-meaning but uninformed or misinformed people had their way.

As to the human factor of safety, a hunter in the woods among other hunters is safer than he would be on the streets of New York City at night. And the next time you put a fork into a juicy

## KNOW YOUR PROTECTOR

**Raymond Y. Allen**

Mr. Raymond Y. Allen was born March 4, 1915 in Person County and graduated from Hurdle Mills High School.

Mr. Allen was employed by the N. C. Wildlife Resources Commission December 1, 1948 as a Wildlife Protector in the Leasburg area. He has attended all wildlife schools on the district and State level, is a member of the Southeastern Association of Game and Fish Commissioners, Law Enforcement Section, and was Protector of the Year in 1959.

The Allens attend Leasburg Methodist Church. They have two sons: Ray, with the N. C. Highway Patrol, and Jimmy, with the Raleigh Police Department, Traffic Division.

## DIVISION ENFORCEMENT RECORD FOR MARCH, 1968

| | |
|---|---|
| **HUNTING & FISHING** | |
| Persons checked | 27,028 |
| Total prosecutions | 442 |
| Total convictions | 427 |
| Total cases not guilty | 6 |
| Total cases nol prossed | 9 |
| Total cases dismissed | 0 |
| Total fines collected | $3,512.30 |
| Total costs collected | $4,272.25 |
| **BOATING** | |
| Persons checked | 3,848 |
| Total prosecutions | 55 |
| Total convictions | 52 |
| Total cases not guilty | 0 |
| Total cases nol prossed | 3 |
| Total cases dismissed | 0 |
| Total fines collected | $ 114.80 |
| Total costs collected | $ 540.75 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

---

steak, remember you may be eating what was once a young 4-H member's pet calf! Maybe there would be fewer muggings and stabbings if some of this aggression were let off by shooting game in the fields and woods.

Yours very truly,
Rod Amundson, Chief
Division of Education

### Trout For Fun

DEAR SIR:

Your article, "Trout At The Crossroads," in the April issue of WILDLIFE IN NORTH CAROLINA is interesting.

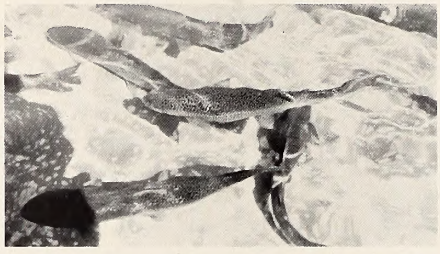
I have long felt that a good supplement to the regular stocking program would be to close the upper one-third of most trout streams and their tributaries to fishing which would help to provide more fish. Also, stock the closed portions with, say one or two percent of the fish each year for stocking the regular streams. That would help offset the fish lost to poachers and there likely will be some poaching.

A program of this type tried, say for five years, would show whether is is worthwhile or not.

Sincerely,
Burt Teague
Asheville

Dear Mr. Teague:

I wish to acknowledge receipt of your letter under date of April 8 containing the suggestions of creating a sanctuary headwater



area in certain trout streams with the idea that as population pressure mounted in this area, surplus fish would migrate to the area downstream open to fishing.

Biologically, your idea holds considerable merit for it should protect many of the smaller fish as well as a nucleous of the wild trout population.

Whether or not the more dedicated fishermen—who generally seek the relative seclusion of the less accessible headwaters—would buy the idea of eviction is another question. Perhaps they would if the headwater sanctuary were open to strictly "fishing for fun." After all, they could always catch the fish they wanted to take home from the downstream area.

Sincerely,
Frederic F. Fish
Assistant Chief
Division of Inland Fisheries

DEAR SIR:

Dr. Frederic F. Fish has the right idea in his recent article, "Trout At The Crossroads," concerning fish for fun. It should be recognized that the pressure of too many fishermen for a limited number of fish can only lead to substantial planning such as this "Fun Fishing Theory."

My wife and I have spent many days in the mountains of Georgia, Tennessee, North Carolina, and South Carolina fishing and camping. It's our consensus that the consumption of those caught was minute compared to the enjoyment of the fishing and camping provided by these states and the government.

If a vote is taken to extend the present seasons but reduce the take-home number, count us in.

Respectfully,
Roy C. Smith
West Columbia, South Carolina

### Better Not Try

DEAR SIR:

Is it possible to tame a full grown coon, or for that matter any full grown possum, skunk, or squirrel?

Sincerely,
Neil Joyner
Fayetteville

Dear Mr. Joyner:

Possible, but very unlikely.—Editor

### Sail Ho!

DEAR SIR:

We thoroughly enjoy the WILDLIFE IN NORTH CAROLINA magabine but believe the "record sailfish"

reported in the April issue is in error.

What may prove to be the biggest sailfish catch on the North Carolina coast was made Tuesday, August 25, 1953, by my father, Mr. Atlas B. Windham, now deceased.

We were trolling for "sail" aboard the Albatross II piloted by Captain Milton Meakins of Hatteras and in the vicinity of Diamond Shoals Lightship when the strike was made. The sailfish weighed 75 pounds and was 8' 3" long. Mr. Aycock Brown (Outer Banks historian) drove down to record the catch and his photograph appeared in the September 1, 1953, issue of the Raleigh *News and Observer* and our home town (Petersburg, Va.) newspaper on August 30.

Mr. Windham was a true Isaac Walton fisherman (and a North Carolinian by birth) and one who greatly appreciated the finer things in "life out of doors."

The catch was made with a nylon feather on a 45-pound test line using a Penn-Senator reel—a rig used earlier that day for many dolphin, bonita, and two 4¼ foot wahoo.

*Field and Stream* magazine recorded the entry among the top ten Atlantic sailfish in their April 1964, magazine.

We hope you will find this information of value.

Very truly yours,
A. B. Windham, Jr.
Greenville, S. C.

## SECRET

• **continued from page 8**

back about 40 feet, real quiet like."

The light was very bright and shined a long way in the water.

Doc's first cast was a beauty. It hit the light.

While he was reeling in, the light seemed to get dimmer. It began to turn kinda green. It didn't seem to be in the same place.

"Paddle back to the light, Buddy, something's wrong."

His Buddy couldn't find the paddle in the dark.

"Hurry! It's getting dimmer!"

"Paddle with your hands, Doc! The paddle's lost."

They both leaned over the sides splashing water all over the place. Doc was pouring it all over his Buddy.

"That $20 light is sinking! Paddle, Buddy, paddle!"

Doc grabbed the anchor and heaved it way out in front of the boat so he could pull the boat toward the light. The rope wasn't tied to the boat. It and the anchor disappeared in the water.

Doc straddled the side and started paddling with his foot. The boat durn near turned over. Doc jumped to the other side. That threw his Buddy flat on his face, splat!

"I found the paddle, Doc!"

He had busted it half in two, but churned away at the water with the good half. They came to where the light had been.

It was shining real green and mysterious like, way down on the bottom.

"So help me Hannah, if I *ever* buy another confounded light I'm gonna buy a life-preserver to go with it! Go get it, Buddy."

"Not me, Doc. I'd just as soon forget the whole thing."

Doc never did want to talk much about it either, after what happened. You can't blame him for that, what with girls falling in, getting cans thrown at him, and losing his $20 fish locater.

And you can understand why his Buddy didn't say anything about it.

Because it was me. ▲▼

## NIGHTHAWK

• **continued from page 16**

he was seeking.

Circling closer, the nighthawk wheeled and flew overhead. The black muzzle of the gun followed its line of flight, and there was an ear-splitting blast as deadly lead pellets destroyed everything in their path. A lifeless garble crumpled to the ground in an unrecognizable heap.

PICKING up the bloody and ragged ball of feathers, the boy flinched at the pulp that had been a nighthawk. There was nothing. Why had he shot it, he thought sadly? He didn't really wish the bird to be dead. What had been a graceful symbol of the night was now a lifeless matting of feathers. He looked out over a distant field where the other bullbats were flying, driven away by the gun's loud blast. A nearby whip-poor-will cried a mournful dirge for its lost brother; for the ghost had returned to them, and the boy sorrowfully realized that he would never be able to capture the spirit of a nighthawk. ▲▼

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# HOMES OF YOUNG BIRDS

by William D. Rodgers Jr.

BLACK-CROWNED NIGHT HERON

FIELD SPARROW

BARN SWALLOW

BLUE-HEADED VIREO

BALTIMORE ORIOLE

KILLDEER

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Raleigh N. C.
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# Wildlife IN NORTH CAROLINA

25 CENTS / JULY 1968

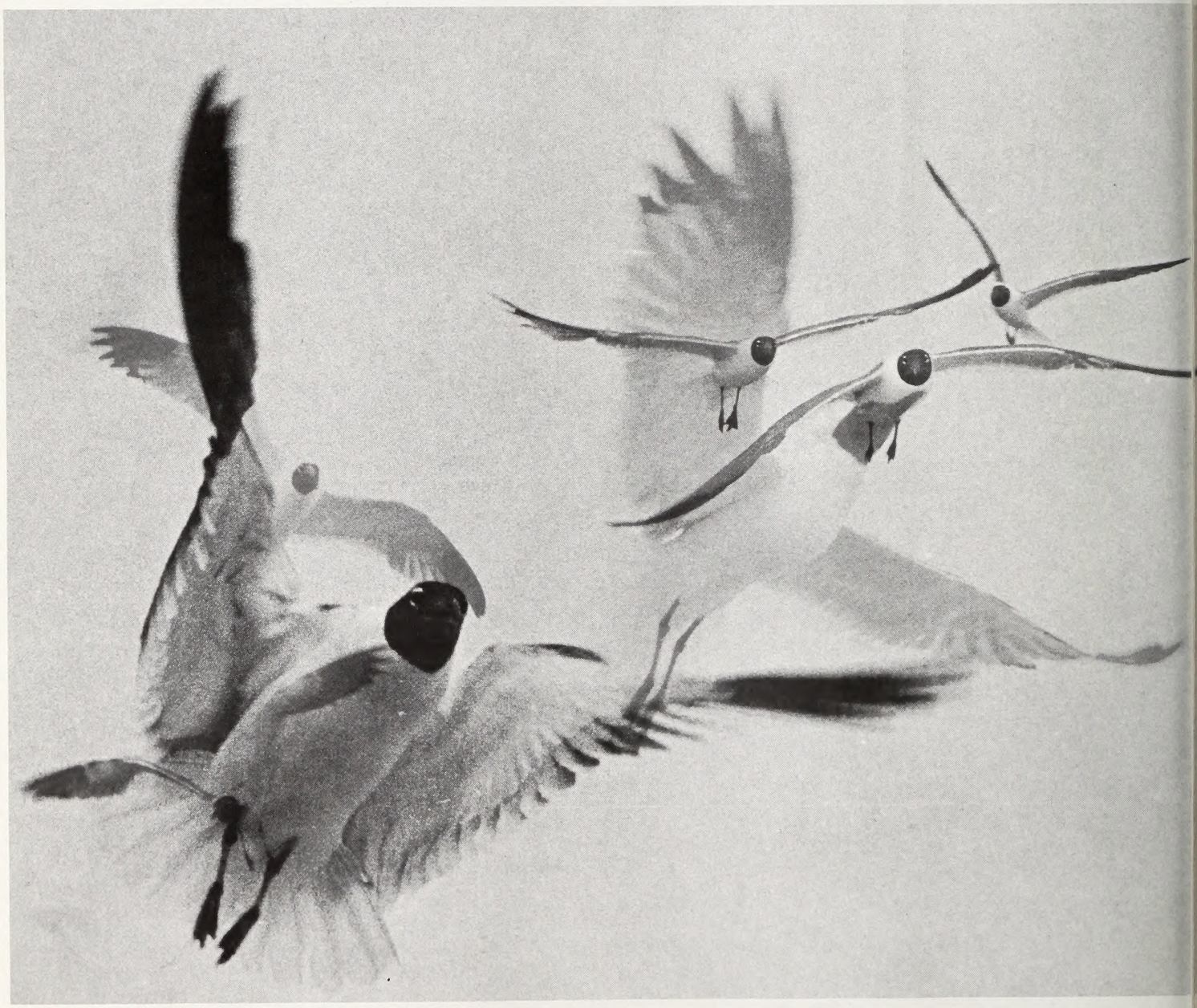

PHOTO BY TOM JACKSON

# *Flight*

Summer, the sea coast, and gulls are inseparable. This photo lets the mind's eye wander through the salt air of a glistening beach area where the cry of sea birds prevails.

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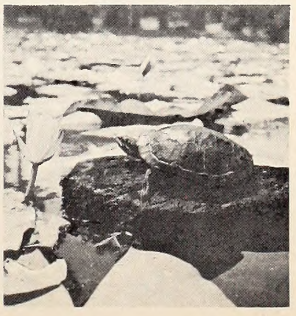
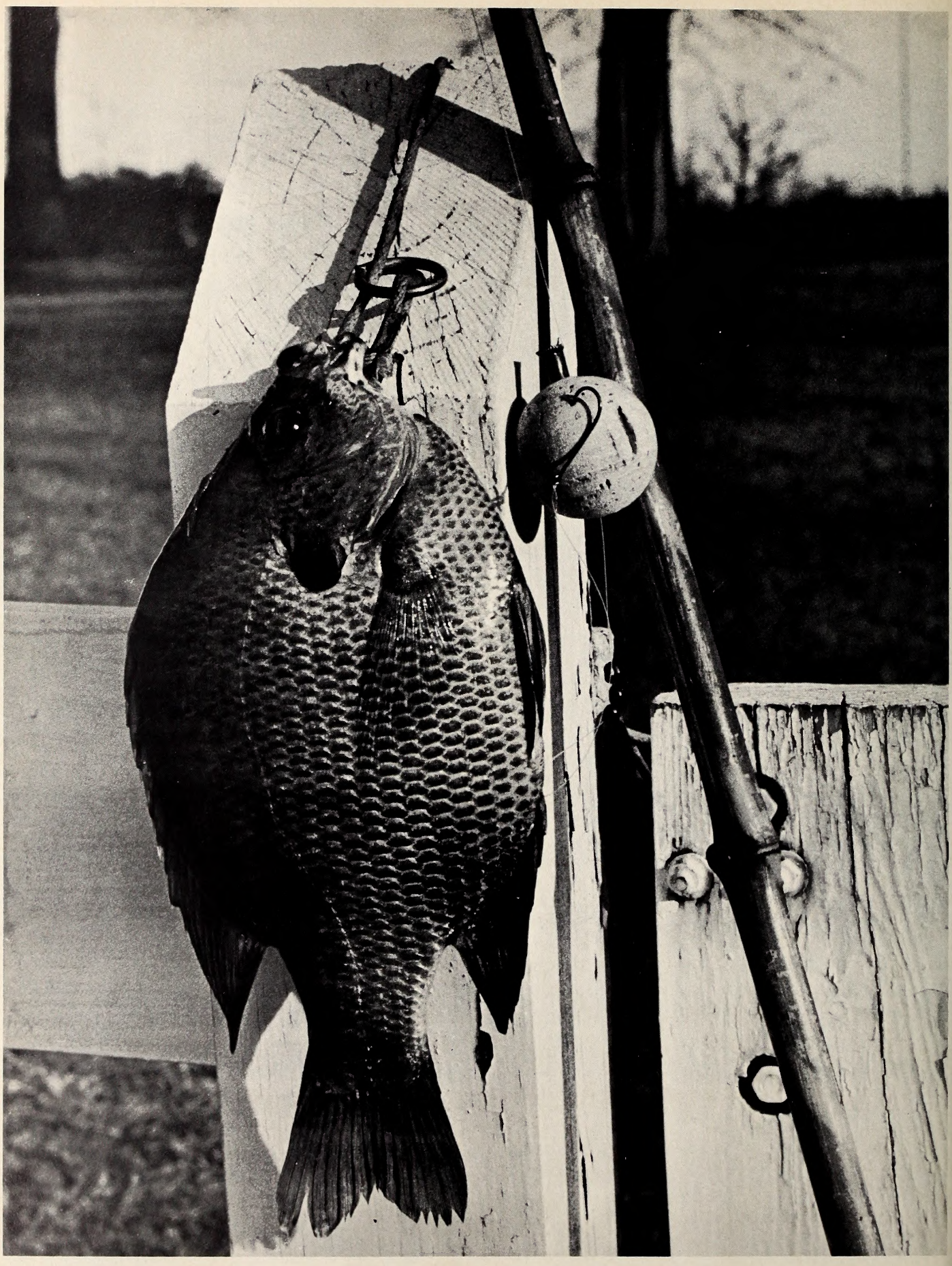


It's a rare pond that doesn't have a turtle or two perched on a water-soaked log somewhere over its placid surface. This chicken turtle is taking its daily sunbath amid the showy blossoms of midsummer. Perhaps your first inclination is to put a bullet through its head. We hope you won't; turtles don't do much harm. Photo by Jack Dermid.



# Cane Pole Fishing

by Jim Dean

PHOTOS BY THE AUTHOR

THE long racks were crammed with lures, line, reels and rods, all gleaming in the fluorescent light and shouting a hard sell "buy me."

A guy stood next to me in a dark business suit, fingering a pink and green Lunker Licker with gold plated treble hooks, and trying to decide whether to buy that or perhaps one of those new Bass Busters with a built-in universal joint, and a 24,000 cast or two-year guarantee, whichever comes sooner. Suddenly, the front door opened and in walked an unshaven, wind-burned man in blue coveralls and a straw hat.

"Got any poles?" he asked the salesman, as a trickle of dark tobacco juice snuck out of the corner of his mouth.

"Yessiree, right this way," said the salesman, leading the old gentleman toward a rack filled with every imaginable type of rod.

"Naw suh, I don't want none of them," said the tobacco chewer. "Poles! Ain't you never heard of cane poles?"

"Well, yes," said the abashed salesman with what passed for pity. "They're out back. Seventy-five cents to a buck and a quarter, depending on the length."

The old fellow knew what he wanted, and he went out back to get it. I felt like cheering him. He hadn't fallen for the glittering bait on the rod rack. Instead, like some wily old bass, he'd gone after the real thing. It suddenly struck me as strange that you rarely read anything about this type of man and his favorite fishing. It's almost as though the cane pole fisherman is a forgotten breed.

Pick up any outdoor magazine and thumb through it. There are articles on bass plugging, tarpon fishing and flyrodding; everything from tuna to trout. It's all there except cane pole fishing. Cane poling is almost completely ignored, even though some estimate that more southerners fish with poles than with any other type of tackle.

There are several possible reasons for this lack of publicity. The folks who cane pole fish don't read much about other kinds of fishing, nor do they spend much money getting outfitted. And finally, it's so simple that magazines don't feel the need to discuss cane pole techniques. Farmers and other country dwellers (who make up the largest majority of cane pole devotees) understand that last reason perfectly. They believe that cane pole ability is an instinctive gift. Like suckering tobacco or walking, it's something that you are automatically able to manage when the need arises.

The idea of walking down to a pond with your whole outfit held lightly in one hand was so appealing that I added to the salesman's growing disbelief by rejecting a new-fangled outfit with a snort of disapproval. Instead, I picked out a whippy cane pole, an unpainted cork, a few split shot and a handful of hooks. I already had the line.

For the exhilarating sum of $1.31, I rejoined the cane pole crowd for the first time since I was 12 years old, and I wasted little time finding a suitable pond to regain a measure of lost youth and innocence.

My first cane pole trip in more than 15 years called back memories I'd almost forgotten; like the time I'd pole-fished for speckles (crappie) in a stump-filled eastern North Carolina pond with my grandfather. The memories of that black-water pond, the strings of speckles and the now faded smile on grandpa's face came back strongly, highlighting a gentle afternoon of lazy fishing that had anchored in my soul a lifelong urge to fish.

I also recalled that now distant time on the Little Alligator River at a desolate jumping off place called Ft. Landing where my father and I had drifted in an ancient juniper skiff, four canes drooping over the stern. In a wilderness of brackish water and moss-draped cypress—one of them cradling an old eagle's nest—we had filled several lard stands with big white perch.

There was an even earlier, but more shadowy recollection of sitting beside a small pond, watching a red and white cork dip and jiggle under the attacks of bream that were hardly as big as my hand, even then.

The old fellow in the tackle store had brought all of this back sharply, and I was grateful.

A day or so later, I stuffed my pole in the car so that it stuck out the back window and sought out a likely pond. For those who are interested, the only proper way to carry a cane pole in a car is sticking out the back window. It is both a visible sign that you are going fishing, and an irritant to passing motorists who don't have—or won't take—time to do the same.

Choice of bait was no problem. A grubbing hoe in a vacant field yielded a can of red worms. Contrary to popular belief, you don't have to use an old rusty tomato or Prince Albert can to hold your bait. An old rusty bean can works just as well. It's still true, however, that the best place to dig worms is in the lot behind a barn. For some reason, worms like this kind of soil, but if you're a city dweller, you might have trouble finding a nearby barn lot.

Although worms are by far the most popular cane pole bait, there are numerous other types of natural bait that will fill your stringer. Crickets, grubs, catalpa worms and minnows are a few of them. If you can't find them yourself, you can usually buy them without any trouble.

Tackle has already been mentioned, but perhaps a little elaboration is in order. Civilization

has made inroads on even cane pole fishing, and you will have to make a choice between the older, more classic tackle or the newer innovations. For instance, cane poles that are jointed are now available for very little money, and they are convenient for the man who doesn't care about making passing motorists envious. True cane pole afficionados prefer unpainted corks—either the small, round type with a wooden peg to secure the line, or a more slender style—but you can also choose from a variety of plastic corks. As for line, I like monofilament testing about 15 pounds. Hook may be either long or short shanked in sizes four to eight. The long shanked hooks are more easily removed from a bluegill's maw, but some prefer the short shanked hooks and carry a disgorger to aid in extractions. A split shot is a split shot, and that's about all you can say about it. If you use too many, your cork will sink, and if you don't use enough, it won't float upright.

Some bait fishermen—you can't call them cane pole fishermen—use old fly rods instead of cane poles, but that is both degenerate and ostentatious; like driving hogs to market in the backseat of the family Bentley.

On this trip, I chose an old pond that was reputed to have a large population of heavy bluegills. I picked out a shade tree near the deeper water at the dam, baited up, tossed out, and sat back. In a few minutes, my cork bounced lightly. Several bobs later, it skidded across the surface then plunged toward the bottom. I hauled back and felt the bream circling strongly. Moments later, I removed the hook from a dark blue bream that weighed about half a pound. Taking care to cover the point of the hook with the worm (a procedure considered absolutely essential by cane pole fishermen who maintain that a bream won't bite if he sees the point) I plopped the cork in again, and it never stopped going down as a twin to the first bream grabbed it.

Several times during the afternoon, I switched spots, fishing in deep water, then shallower water and around obstructions. I found—as do most cane pole fishermen—that you can catch bream and other fish at times almost anywhere in a pond, but most of the time deeper water or obstructions get more action.

There are several little miscellaneous items you might want to know. If your cork floats on its side, and you know you have the right amount of weight, you're probably fishing on the bottom. Lower the cork a bit, and try again. In fact, it's a good idea to try different depths.

One of the best things about this fishing is that you can legally fish in your county of residence without a license if you use natural bait. This applies to every type of fish except trout. Also, if you own your own land or lease it, you, your spouse and dependent members of your family under 21 who live with you can fish on the land license free.

Finally, and perhaps most important, you can pass on to your youngsters a lasting memory by taking him to a likely pond and putting a cane pole in his hand. That memory will be priceless in years to come, and he may never get over the thrill of watching a cork disappear.

# North Carolina Seaside

by E. T. Moose

Do you ever wake up sleepy-eyed and look out of your ocean-side cottage window to see if dawn is beginning to break? Not merely to see if it's daylight, because if your watch shows four o'clock or later, you know you're going to get up anyway. Last night you oiled your reel, sharpened your hooks and checked your tackle. Even while you rub your eyes to get completely awake, you hear the bacon frying, the coffee perking and drop two eggs in the pan to scramble. And where but on the beach do bacon, eggs and coffee taste so good!

Next you realize you're the first guy on the pier, with the pick of any spot you like. And then that first cast. How you've turned it over in your mind a thousand times even before you make it. You release the monofilament at "twelve o'clock" and just imagine your bottom rig sailing half-way to France. Then that first strike . . . and you reel him in. No words in the King's English can describe the thrill!

But . . . there's more to fishing than just catching fish. Now the rosy glow appears in the East and as you're clothed in the balmy, salty atmosphere and the pleasant breeze soothes you through your light jacket, the top ring of that glorious ball of fire appears and a little later up comes the red sun out of the broad Atlantic . . . it's sun-up!

Sunburst streaks appear through gold-lined clouds patterned as only the Maker of those clouds can pattern them . . . to create a sunrise that will be etched in your memory as long as memory lasts. Lumbering pelicans following their leader appear in silhouette formation against the early sky, bound for an early breakfast.

Now the pier is becoming more crowded by many who know "The Fisherman's Prayer." Priest or pauper, tramp or tycoon . . . they're all brothers under the skin when out fishin'. They speak the same language, and here share the same hopes and dreams, as they drink deeply of the pleasure that is theirs.

Little fellows are here, too, accompanied by dads with a conscience that knows how important it is to be a real pal to their sons. Here's the distaff side also. Teenagers and grandmothers side by side to pit their feminine skill with rod and reel against all who care to compete.

There's gay camaraderie, teasing, taunting, joshing and jesting. Here are seasoned fishermen who know the sky, the wind, the tides, the color of the water. At their side are rank amateurs who'll knock your hat off with their circular swing (but didn't we all have to learn).

Off the pier lovers stroll arm-in-arm and stoop to gather shells of intricate and shapely beauty. Sand crabs bury themselves hurriedly, following the recession of every lacy-white wave.

A brilliant, multi-colored beach ball eludes its tiny possessor as big brother swims out in a futile attempt too overtake it, but to no avail. On and on it skims on the blue-green waves until it becomes a tiny speck and finally disappears from view. Baby is pacified, however, for ere the ball is half a mile out, papa is on his way to buy a new one.

As the North Carolina seaside day continues, huge thunderheads appear inland and later great patches of shower streaks are seen in the west. "They're getting rain up there", someone says, and as clouds pass between sea and sun, the water becomes chameleon-like in its iridescent beauty, accentuated by whitecaps . . . harbingers of an approaching storm.

Seafarin' folk are accustomed to storms. Even in the midst of rolling thunder and bright bursts of lightning the sea is terrifyingly beautiful. Unpredictable? Capricious? Yes. But like a woman, changing her mind is her prerogative. Long before evening the storm is past and devotees of hook and line are back at their post. The boom of a shrimp boat is seen in the distance and a sleek white charter craft is heading for port.

Night comes. Ribbons of colored lights appear from merry-go-rounds and other seaside attractions. There's music . . . and laughter from the young . . . enjoying the best years of their lives on the North Carolina coast.

Now the moon is yellow. Now the sea is plastic-in-motion, gloriously reflecting the yellowness of the moon on her breast. So . . . the fishermen fish on into the wee hours. The tots have long since left the merry-go-round and now are asleep with their cuddly toys. Mama has put away her book. The lovers still love and make their vows. To keep? Who knows.

This we do know . . . we who love the sea and all that surround her: that time and time again the North Carolina coast will call . . . and we will answer with the words of the English poet, John Masefield—

"I must go down to the seas again,
to the lonely sea and the sky,
And all I ask is a tall ship
and a star to steer her by;
And the wheel's kick and the wind's song
and the white sails shaking,
And a grey mist on the sea's face,
and a grey dawn breaking".

# Where Fish Feed

**by J. Harry Cornell**
*Chief, Division of Inland Fisheries*

FISH feed where the conditions are to their liking, and where there is an adequate supply of their preferred food. That much is obvious. The successful fisherman selects his baits from a knowledge of the preferred foods of the species he is after, and he uses those baits at places and times when he believes the conditions are most satisfactory for the fish. The unsuccessful fisherman selects baits which please him and uses them at his own convenience.

Suckers will move along the bottom of a stream, picking up bits of organic materials such as the insect life which might feed their betters, the earthworm on the small boy's hook, or the egg which a minnow or rock or trout has just deposited. Carp are principally vegetarians, and in feeding they will root up the bottom of a pond just like pigs in a field. Bits of vegetables, grains of corn, or balls of dough make the best baits.

Herring and menhaden are seldom caught on a hook, for their food is plankton—the extremely small plants and animals that drift free in the water and which are captured by the fish straining them out as water passes in his mouth and out through his gills.

Gizzard shad feed on vegetation, with only occasional insect life in their diet, and seldom are caught on a hook. Most minnows prefer animal life, either the larval or adult forms of aquatic insects; but some, like the golden shiner, grow large enough to take small artificial flies or bits of earthworm, and may be taken by the fisherman who tries for them.

The drum family feeds mainly on mollusks and crustaceans. Chances are that the fisherman who specializes in catching channel bass, or red drum, will tell you that crabs are the best bait. On the other hand, if he catches king mackerel or bluefish he probably will want small fish for bait, or a plug which imitates them.

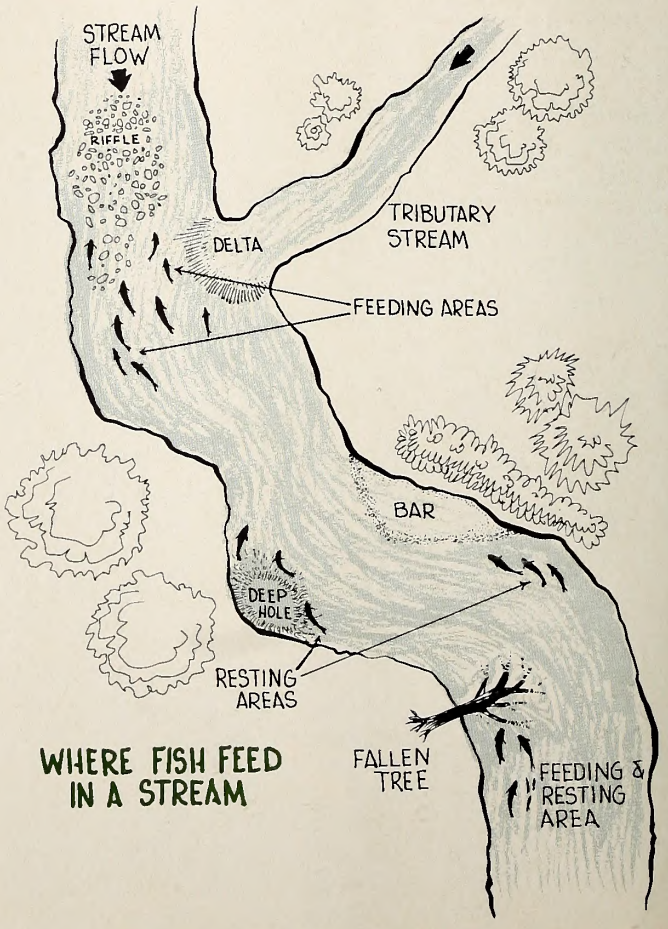
In fresh water, too, nearly all the game fishes are carnivorous. The young must compete with each other for the available supply of insect larvae and other small aquatic animals. As some become larger, they feed on the smaller fish as well. Bream and trout continue to depend on a diet of aquatic insects or their larvae all of their lives, except some of the largest ones which find that small fish provide a more satisfying meal. This accounts for the success of popping bugs in bream fishing, and the general use of artificial flies for trout.

The fisherman who wants really large trout uses small minnows or artificial lures which imitate them. So, too does the fisherman for crappies and white bass. He remembers that walleyes, jack, and black bass have larger mouths and prefer large minnows.

And so it appears that the first step in learning where fish feed is to know something about their preferred foods, and then to understand where that food might be found in different waters. The trout fisherman knows that the rocky riffle areas in a stream are the home of the animals the trout eats. That is where he uses his wet flies and nymphs. When the trout are not feeding, they will rest in a pool below the riffle. One of their favorite feeding spots is in the edge of the white water, just where the riffle empties into the pool, for it is there that the food produced in the riffle washes down with the current to the waiting fish.

When the riffle enters the pool at one side, an eddy often is formed near the head of the pool. Food animals washing in with the current are concentrated by the eddy into a very small area, and—if you were a fish in that pool, where would you look for your dinner?

In stream fishing for bass we must think a little differently. The smallmouth will not hestitate to move into the rocky rapids and look for a crayfish



WHERE FISH FEED IN A STREAM

among the stones. Some of the minnows will be there, too. But usually he would rather lie in a deep run behind some rock that breaks the force of the current and wait for his dinner to come swimming past. And the large minnow-eating trout feeds the same way. Both he and the smallmouth seem to reason that there is no use burning up energy fighting a fast current when it is possible to rest in the bottom of a deep pool, or under a cut bank, or behind a convenient rock and wait until a careless minnow comes swimmnig past.

The largemouth bass doesn't bother about such problems. He simply avoids them. In a river, he seeks out the slowest and deepest pool he can find. There he can pursue minnows when he is hungry without bothering about currents. He will move into the shallows to feed when the minnows go there, or down into the deeper water to rest in the middle of the day. But he just has no use at all for fast water.

In ponds, which usually are moderately shallow, the largemouth seems to prefer some shady spot in the middle of the day. He may be resting under a clump of lily leaves, in the shadow of an old stump, or beneath a sunken log, and the minnow that comes past will promptly become a bass dinner if the bass is hungry. Lacking such hiding places, he will move out into deep water to escape the heat of the sun and to be hidden by depth. In the early morning or in the evening he moves into the shallow water to feed on minnows or on little bream which congregate there.

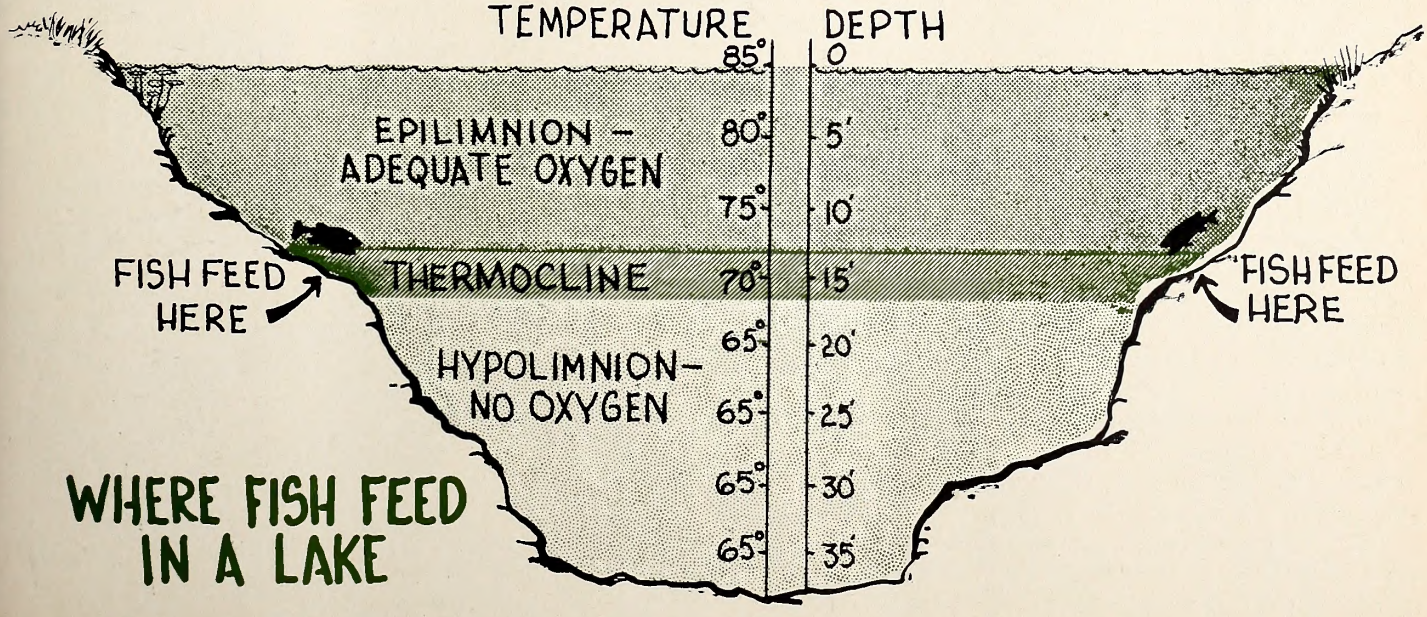
The bream in the pond seem less concerned about midday temperatures and remaining hidden. Unless it is extremely hot, even the larger bream stay in fairly shallow water. They seem to know that the insect life they feed on is more abundant near the shore. Brush-lined banks along the edge of a pond have an endless supply of terrestrial insect life, some of which seem anxious to fall overboard and supply dinner for a hungry bream. And the bream seem to know it.

In reservoirs and the larger lakes there are a whole new set of conditions which affect the problem of where fish feed. The most important of these are water temperatures and the oxygen supply. Fishermen will tell you that the fishing for some particular species will be best "when the dogwoods bloom," or on "the first full moon in May." Actually these phenomena are unknown to the fish. But there is an average temperature for the first full moon in May, and the dogwoods bloom by temperature rather than by date. Neither the trees nor the fish can read a calendar.

In streams and in shallow ponds there is little the fish can do about temperatures which he does not like. We know that the fish has no temperature regulation of his body as we have, and that his body temperature changes with that of the water. When a piece of water is so deep that different temperatures are available to him, simply by going to shallower or deeper water, we know that he will try to go where he is most comfortable. Why not?

Let's consider the largemouth bass, for example. They will start to feed in the spring when the water is about sixty degrees, but given a selection of temperatures they will stay within the seventy to seventy-five degree range. When the surface water reaches that range, all the largemouth bass in the reservoir will be feeding on or near the surface. The plug fisherman gets his limit and the boat dock operator is happy.

But two months later the surface temperature may be eighty-five degrees and the seventy to seventy-five degree water may be twenty or thirty feet deep. The bass are down where the temperature suits them and never even see the fisherman's plug. Both the fisherman and the boat-dock operator are unhappy, and both demand that the lake be "restocked." And unfortunately, this situation coincides with the time when most folks take their vacations.



As if it were not already complicated enough, this temperature preference in reservoirs is further altered by the oxygen supply. It puts a bottom limit on how deep any fish can go in seeking its preferred temperature.

During the heat of the summer, bacteria decompose the organic matter in the bottom of a body of water. This uses up oxygen. Unless it is stirred up by wind or a strong current moving through the lake, a basin of water in the bottom is formed which does not mix with the upper layers, and which characteristically is cold and almost completely without oxygen. It is called the hypolimnion.

Above it is warmer water. This layer is continually mixed with the surface water, but not with that below because the very cold water is heavier. The upper layer usually has plenty of oxygen for fish to breathe. It is the epilimnion. These two layers are separated by a thin layer of water where the temperature gradient is very sharp and which usually has only a small oxygen supply. It is called the thermocline.

Now it is obvious that the bass can follow this temperature preference down as far as the thermocline, but when he tries to go below it he must return to the layer of water where he can breathe. We might say that the thermocline puts a bottom limit on how far the bass is free to go in seeking water of the temperature he likes. Otherwise he pays no attention to it. The preferred temperature of each species is most important in deciding where it will feed in a reservoir.

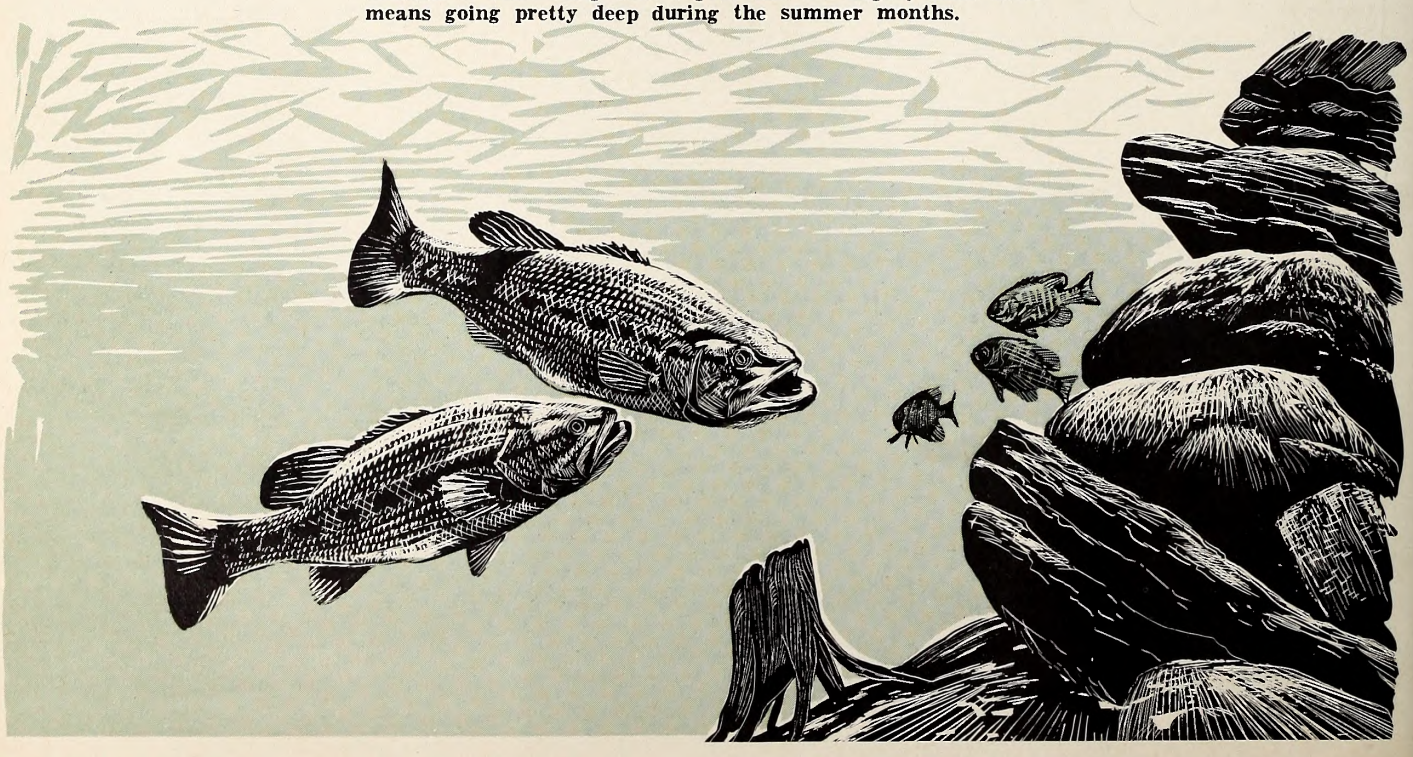
But more food is available along the lake bottom than in open water. So where would you go to feed if you were a bass? Why down to your preferred temperature layer of seventy to seventy-five degrees, and then sideways until you came to the reservoir bottom where the water was just that deep. In a big lake, that is where most bass feed.

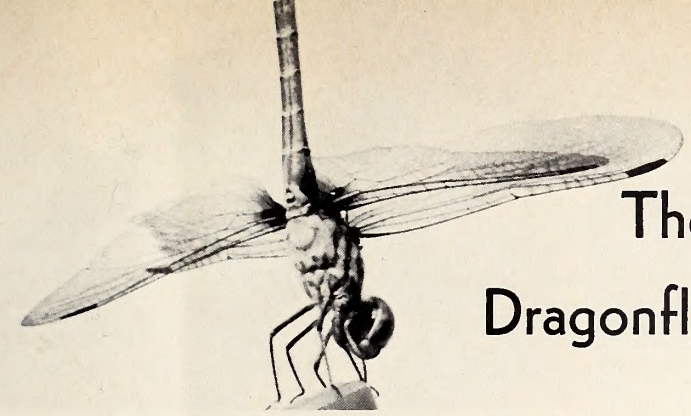
Bream find their preferred temperature range between 75 and 80 degrees. The smallmouth bass, on the other hand, is able to use food most efficiently when the water temperature is between 60 and 65 degrees. Walleyed pike do their heaviest feeding at a temperature range of 55 to 60 degrees, and trout can use food most efficiently when the temperature is between 50 and 55 degrees.

The successful fisherman knows these things from experience, even though he may never have considered the actual temperature ranges. He knows, too, that in lakes the water is colder near the bottom than it is near the surface. He knows that when the water is warm he will catch nothing but little bream or perch by fishing near the surface. When he wants to catch bass he will fish late in the evening or early in the morning when the water is cooler near the surface. Or, in the middle of the day, he will fish very deep where the colder water is to be found. He will fish even deeper for smallmouth bass and walleyes than he will for largemouth bass and bream. In those lakes which are really cold near the bottom and which support a trout population, trout can be caught, even in the summer, by fishing within the limits of their preferred temperature range.

Understanding the factors which determine where fish feed helps to make an expert fisherman of a beginner. A thermometer lowered into the water on the end of your fishing line, and then drawn up and read quickly before it can change, is a big help in locating the depth at which fish might be feeding. On those days when you find they just aren't biting, this is worth a try. ⬍

**Unless you fish the depth at which fish are feeding, your chances of connecting with a good one are mighty slim. This means going pretty deep during the summer months.**





# The Dragonfly

by Frank Mooney

INSECTS have always fascinated me with their different methods of defense, and the variety of ways they reproduce and secure food. The dragonfly, a beautiful water insect, has amazing maneuverability as its sweeps and curves through the air with great speed to catch its prey or elude its many enemies. Once I watched as an English sparrow almost went into hysterics trying to catch this insect acrobat, while the dragonfly easily dodged the bird, and yet stayed within easy catching distance.

The dragonfly comes in several different colors, blue, green, or brown, with two pairs of large wings that shimmer in flight. The fragile wings look like fine gauze, but are able to propel the flying dragon at great speed. These insects have been clocked at 60 miles per hour in downward flight. Perhaps when the helicopter was invented, the builders had the dragonfly in mind.

This predator has large compound eyes which enable it to see moving objects many feet away—small flies and mosquitoes that make up the principal food of this helpful insect. The legs fold together much like a basket to hold its meal while in flight, and often the prey is devoured while on the wing. Its six legs are covered with spines which enable the insect to grasp the prey with either its jaws or legs. These agile critters even mate while in flight. Once the dragonfly is grounded, he is hunted relentlessly by predatory fish and birds.

When I was young and first started to frequent the forests and streams near my home, I noted this insect often darted along the edge of the pond amid the cattails, flirting with death in the form of a prowling large-mouth bass which had invaded the shallows. Later, as books came into my life I learned that the dragonfly was going through a reproduction cycle by depositing a single egg at a time in the shallow water or in the stems of water plants. I found that the eggs hatch in five to fifteen days into ugly big headed nymphs that remain in the water for one to as long as five years. The nymphs feed on water insects, and other small water life. The larger nymphs even feed upon small fish.

One warm evening during hunting season, I was on a bear crossing hoping for a close range shot at old bruin as he made his trip back into the swamp; the mosquitoes started to buzz. An agile skeeter hawk descended quickly to scoop up a mosquito near my leg, then settled to make a hasty meal. Then it captured another and quickly ate the morsel while on the wing before departing. Another time I had a short but interesting meeting with a large blue one that was seeking shelter from a strong wind and rainstorm that had caught us both unaware in the open.

I ran to the car as the first large drops of rain pelted my shoulders. It was hot in the car, so I let the window down several inches on the downwind side. This large bespattered dragonfly struggled against the gale force wind and fluttered inside my car to light on the seat near me. The insect looked like it had been run through a washing machine, but within a couple of minutes he was dry displaying that iridescent color that is so obvious at close range. That dragonfly continued to stay in the same position as I drove several miles to my home, there I left the window open so he could return to his habitat when the urge finally struck him.

It's surprising that so many people know this insect by another name. Skeeter hawk, and snake doctor are two of the most common ones; however, to some it's devil's darning needle. When I was young but old enough to start noticing the wonders of nature, I soon was told that the dragonfly was a snake doctor, and that if a snake was hurt the doctor would nurse it back to health! I used to try to see what kind of medical bag the snake doctor had to carry on his trade, but I never had any success!

The nymph has a thick body and a big head, but no wings. A large folding lower lip with a scoop-like hook at the end and about half as long as the body, gives it a fierce appearance. The lip can be thrust out to capture its prey. This ugly larva sheds its skin, or molts, twelve or more times, before making its debut on a log, rock or some obstacle above the surface of the water where it will start its relentless pursuit of the mosquito.

One hot, humid day in June while fishing the main run in the White Marsh Swamp, I was lucky enough to spy a dragonfly nymph emerging from its ugly underwater shell. I watched with mixed feeling, because I wished for my camera that was on the table in my den at home. The nymph had crawled onto a half-submerged log near midstream to develop into its final stage. The wobbly dragonfly was fully - formed with crumpled wings and no longer breathing air through nymph-stage gills.

This useful skeeter hawk should be protected, because it consumes large quantities of the pesky insects that make life unpleasant for man; it also adds beauty to Nature's setting, thus filling a gap in the wild kingdom . . .

PHOTO BY JOEL ARRINGTON

**Stealing and reselling dogs, particularly sporting dogs, is big business. Protect yours against the thief, make sure of the source of the dog you buy. Report questionable practices.**

# Dog Thief

**by Jack Willis**

CHARLES Holder of Candler, near Asheville, is a walking primer on dog thieves. Not the kind of thief who steals Johnny's pet and spirits it off to the vivisectionist. No, Holder is on the trail of professional dog thieves who make $20,000 to $50,000 a year stealing and selling hunting dogs.

Specifically, Holder is looking for the thief who stole his UKC registered Walker treeing coon dogs. They are valuable dogs, having been professionally trained and having competed in major trials, meets, and shows from nationals in St. Louis to regionals in South Carolina. Holder has around $5,000 tied up in both dogs; although both only would bring from $200 to $1,500 on the market that the professional thief deals in.

"But that's easy money," Holder said, because the only risk is when the steal is made. Once the thief gets the dogs to his lot, he is practically safe from the law.

There dogs will be run and tested to see what they can do. The better dogs will be dyed to camouflage distinctive markings; and tattoos, altered and burned. If dogs are notched in an ear, the thief will add another notch and maybe one or two to the other ear for good measure. The poorer dogs are turned loose or killed.

These poorer dogs were once sold to research laboratories. But Federal and State laws, such as North Carolina's laboratory animal welfare act, to insure humane care by dealers and laboratories have cut off this market to the hunting dog thief. Unwilling to be licensed and inspected and meet other requirements of the laws, the thief is forced to dispose of the poorer dogs. The surest and less chancy means is death.

If, by chance, a stolen dog is found, the thief will say the dog ran up in his yard or he found him on the road or he bought him off an unknown trader down by the stockyards. And who's to disprove it, Holder said.

Because of the difficulty of conviction, it is hard to interest law enforcement officers to spend the man hours needed to trace the tedious and tortuous path stolen dogs often take. Holder cited the case of a bird hunter in Washington State who finally found his stolen dog a year later in Maryland.

Unlike the exceptions made for stolen cars and cattle, transporting stolen dogs across state lines is not a Federal offense, unless a dog has a proven value of $5,000 or more.

Like the Washington bird hunter, Holder, too, was on a similar search two years ago. He went as far as Michigan and even up into Canada, he said, only to find his dog nearby in Lawrenceburg, Tennessee. "I notified the authorities and got my dog back, but we couldn't get a conviction."

But at least it made him familiar with the underground dog dealers and markets.

If the thief is part of a ring, he'll simply accumulate enough dogs for a tractor-trailer load and ship them to dog dealers in Pennsylvania and Maryland who specialize in stolen dogs,. From there, dogs are worked into legitimate markets and scattered from New England to the West Coast.

The dispersing of dogs stolen by the independent or smaller thief is just as effective. He will

sell to traders or hunters looking for cheap but good dogs; often admitting the dog is stolen, the thief will promise to refund his money if the dog is claimed by the rightful owner. The buyer, in turn, can sell the dog for more money than he paid in areas where the dog is less "hot." In this way, Holder said, dogs going from hand to hand go from state to state.

A dog thief will bide his time, Holder said, waiting to get dogs he wants. Passing himself off as a hunter, the thief will attend hunt and bench shows, mentally selecting top dogs; or he will strike up a conversation with a hunter and ask if he knows anybody with real good dogs they'd be willing to sell. "That's innocent enough," Holder said, "and somebody I hunt with may have said, 'Holder, over there on Pisgah Mountain, has some pretty good coon dogs, but he's got two that he wouldn't sell for love or money.' Those are the two the thief wants."

In Holder's case, the thief waited until Holder and his wife were Christmas shopping in Asheville. When they returned, Holder's Smokey Mount Lady had been taken off her chain. "Of course, it would have been just as easy for a thief to wait until we were running and to take Lady off the field. We wouldn't have known the difference until it would've been too late."

After Christmas, Holder began looking for a red pickup truck that had been seen going up his road five different times before Christmas. One of the times, it had pulled up in the yard and when his wife went to the window to see who it was, the truck spun out of the driveway and off down the road.

A pickup truck is an ideal dog carrier. Covered with canvas the bed can hold 20 to 25 dogs and the passing motorist would never know the difference. But less conspicuous is an ordinary sedan. With holes drilled in the bottom of the trunk for ventilation, Holder said, a thief can carry 10 to 13 dogs and take them anywhere he wanted.

By the middle of January, Holder had to redouble his search. He just returned from Sunbury, 25 miles west of Elizabeth City, where he talked to a dealer who had been selling dogs for 30 years but had never been known to buy any. He and his wife again went to town. When they got back, Nite Champion Holders Lucky Corky was gone and his third remaining Walker killed, shot in the head and still chained to her house. Holder said the dog was killed to throw him off the track. "A dog thief doesn't normally kill dogs. They can't make a living that way."

Nevertheless, Holder persists in his search. Since the thefts six months ago he has spent half his time on the road. He has gone to Tennessee, Pennsylvania, Maryland, back down through the coast to South Carolina, Georgia and Alabama. Where he stops, he advertises in newspapers and on radio his $300 reward for any information and an added $1,000 if the information leads to conviction. He finally traced the red pickup to an operation near Wadesboro, but after this long he knows his dogs are in other hands by now.

What drives Holder to spend, thus far wasted, time and money?

He is not just trying to recover two valuable coon dogs; he is trying to find two companions he raised from pups. Although the love men have for dogs is a socially accepted fact, at present it does not have much legal recognition.

Will your dog be next? ⬍

**The better the dog, the better his chances of getting stolen. This black and tan, Rawhide, by name, would bring top dollar because of his past achievements at bench shows.**

PHOTO BY JACK DERMID

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Look at Your License

If you have been fishing on an up-to-date combination hunting-fishing license, it expires at midnight July 31. If you have a statewide or county fishing license it is valid until midnight December 31. This time of year more arrests are made for fishing license law violations than any other offense. There are exemptions to fishing license requirements. If you are not sure of your fishing license need, get a copy of current fishing regulations from your license dealer, or request a copy from the Wildlife Resources Commission, Box 2919, Raleigh, N. C. 27602.

### Hunting Regulations Ready

Regulations for taking nonmigratory game species are in the process of being published and will be available from hunting and trapping license dealers by August 1 when 1968-1969 hunting, combination hunting-fishing, and trapping licenses go on sale. This year special hunting regulations pertaining to game lands will be combined with those pertaining to hunting nonmigratory game species. Regulations for taking migratory game species, as established by the U. S. Department of the Interior will be announced later on.

### National Safe Boating Week

Governor Dan Moore has designated the week of June 30-July 6 as National Safe Boating Week. Early in his administration Governor Moore showed deep concern for total water safety when he appointed the Governor's Water Safety Committee in August, 1965. Since then this committee has had a strong influence through various programs on reducing the number of boating and other water-related accidents and fatalities in North Carolina.

### Panthers in North Carolina?

Speculation is growing as to whether native panthers, *Felis cougar* still exist in North Carolina. Positive proof still has not been given, but chances are improving. Watch future issues of WILDLIFE for further developments.

PHOTO BY STEVE PRICE

# The Wild Ponies of Ocracoke Island

AFTER having had to survive an 18th century shipwreck and then live off tough sea oats and marsh grass for 250 years, the wild ponies of Ocracoke Island have come a long way.

Today the horses are the property of the National Park Service, receive special protein food in winter, and are the most famous animals in North Carolina.

According to one legend, the ponies, which are larger than Shetlands but still smaller than normal horses, are descendants of some Arabian stock that managed to reach shore after a shipwreck around 1700. Superstitious folk on the island today might tell you the horses are evolved from the many fiddler crabs that creep along the island's beaches.

At any rate, the stout little ponies survived the harsh conditions on Ocracoke, multiplied, and became wild.

Actually, the ponies aren't really wild, and as far as the National Park Service can determine, never were. Ocracoke is hardly large enough for that. Instead, the animals became the property of the early settlers who came to Ocracoke.

The ponies were kept in simple corrals near Ocracoke village, but later, as additional horses were brought in to improve the breed, the animals were allowed to roam free over the island.

Each Fourth of July the islanders staged the annual "pony penning," during which all the horses were driven to a large corral on the shore of beautiful Silver Lake, around which the village of Ocracoke is built.

There the young colts that had been foaled during the past year were branded. It was easy to tell which colt belonged to whom, for the young ponies always stayed at the side of their mothers. After the branding, some of the animals were usually offered for sale, and those not sold were turned free again.

The last round-up and "pony penning" was held July 4, 1960.

Today the ponies, numbering between 12 and 15 animals, are kept penned in a 180-acre enclosure near the center of the island. The herd is kept at that size by offering the animals for sale at irregular intervals.

For food the animals eat the tough sea oats and marsh grasses growing on the dunes. In the winter, the National Park Serivce adds a high-protein food to supplement the natural forage diet.

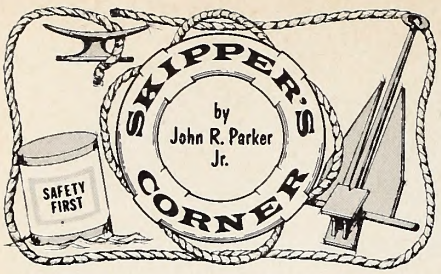
When the ponies want water, they dig their own "wells." They do this by scooping out a shallow depression in the sand with their front hooves. In minutes, the "wells" fill with fresh water and supply enough to satisfy the herd.

Photographing the horses often involves a bit of luck on the part of the photographer, for the animals are often grazing out of camera range. Occasionally the ponies wander close to the enclosure fence, but even then a medium-range telephoto lens is recommended for sharp, clear pictures.

The herd's fenced enclosure is near the center of Ocracoke Island, just off state highway 12, the Island's only major roadway. Often the ponies may be seen as one drives past.

Although the horses are confined to the fenced enclosure, they often appear to be "running wild" to the visitor who comes upon them suddenly for the first time. Grazing in the marsh weeds as the animals do, they seem to be totally free and independent—completely unaware that they are part of a national seashore!

**Steve Price**




"SAFETY First—Boating's Golden Rule" is the slogan for Safe Boating Week 1968, June 30-July 6.

As you will quickly recogize, the date includes July 4th, just one of the days this summer in which certain of the state's waters will be heavily boated. And it is during July and August that boating accidents are most numerous.

Boating fatalities on the public waters declined in 1966 and in 1967 from the high of 1965. But even if the downward trend continues at a similar rate, we might expect approximately 35 fatalities from boating accidents this year.

What can this year's Safe Boating Week slogan do to insure a continued decline in accidents? Well, not a thing, if it is not applied. However, if each boater would keep in mind Safety *First*, there has to be a safer boating scene for North Carolina. Putting safety first means that you must consider the stability of the boat prior to standing to make a cast or to stretch. It means you should be reasonably sure about water obstructions prior to advancing the throttle. It means that "it can happen to me" and that all that "useless safety equipment" might save my life. It means all of this and more if Safety First is truly the password aboard your craft.

### Fishing Nets To Be Marked

The Division of Commercial and Sports Fisheries moved toward boating safety when it supported a regulation requiring that fish nets be marked. The regulation, passed by the Conservation and Development Board, a few months back requires that "In Albemarle, Roanoke, and Croatan Sounds and their tributaries; and in Pamlico River: (1) No anchor or fixed gill net shall be used unless such net is marked for the protection of boat operators." The net line is to be marked with white floats (plastic jugs will most likely be used) and the ends are to be marked with orange floats.

PHOTO BY EVINRUDE MOTORS

**We don't suggest that you hand your ten-year old the keys to your ski boat, but to practice some of what is pictured here makes sense. In boating, attitude is more important than age.**

It follows then, if you wish to pass safely around a gill net you may do so by runing parallel to the net and passing around the orange float at the end of the net and between two orange floats if it is a line of nets.

This is certainly a good step. However, the regulation did not include mention of pound nets which are attached to net stakes.

The fact that thousands of these stakes are left unattended to rot off at the water line is another touchy situation that many boaters feel needs attention.

### Running Lights Are Important

Running lights, especially on smaller craft, are too often neglected. By state law, a boat with a 10 horsepower motor or less, regardless of length, is not required to carry anything more than a hand-held light. And in nine southeastern counties not even that is required by state law. I believe that you will agree that both situations could stand some alteration. However, on waters of the state patrolled by the U. S. Coast Guard (federal or navigable waters) all motorboats are required to be properly lighted. And all rowboats must carry a hand-held light as is true of state law (except in nine counties mentioned above).

Personally, I feel that all craft operated at night (between sunset and sunrise) should have some way of letting others know they are on the water. The hand-held light may be enough for rowboats—or is it? We have received accident reports in which the operator did not turn on his flashlight in time. The tendency is turn on hand-held lights when danger is imminent. It may be too late then.

There is nothing that makes one appreciate running lights as much as almost running down a boat without them. Lights designed for small craft may not be perfect and some say that running lights *reduce* visibility, but I'll take my chances with lights on.

Wildlife Commission records indicate that about four percent of all violations involve lights (or lack of them). The percentage is relatively small but some of the state's most serious boating accidents fell into this category.

Lights are not just for the "big boat." One can seriously damage or maim or sustain serious damage or be maimed by small craft. If safety is really first aboard your craft, then light her up. As we have heretofore mentioned, lighting kits are available for about $5.00. This is the type that requires flashlight batteries, no wire, and can be affixed to your small boat in minutes. On larger utilities and runabouts standard factory installation is, of course, recommended.

**Sewage Treatment Devices**

The State Board of Health approves sewage treatment devices for boats in accordance with Chapter 75A-6 of the General Statutes, the Boat Law. The following is the second list approved by the Board. Copies of the law are available from this Corner.

## Acceptable Sewage Treatment Devices And Holding Tanks

For the purpose of carrying out the provisions of Chapter 75A-6 of the General Statutes, the State Board of Health has investigated the following equipment and finds it meets the Design Standards for Marine Sewage Treatment Devices and Holding Tanks that were adopted by the State Board of Health December 2, 1965, and amended February 8, 1968.

1. *Holding Tanks:*
   a. Monomatic Models 1 and 111 (Recirculating toilet holding devices) (Manufactured by Monogram Industries)
   b. Mono - Marine Sanitation System (Manufactured by Monogram Industries)

   These holding tanks are acceptable for use in vessels where marinas are equipped to pump the sewage from the tanks and dispose of it on shore in an approved manner.

2. *Chlorinator Grinder Devices:*
   a. Carlson Mark VI Sewage Treatment System (Manufactured by Koehler-Dayton, Inc.)
   b. Figure 6000 "Seaclo" (Manufactured by Wilcox-Crittenden)
   c. Carlson Mark V C-Chlor (This unit is no longer being manufactured.)

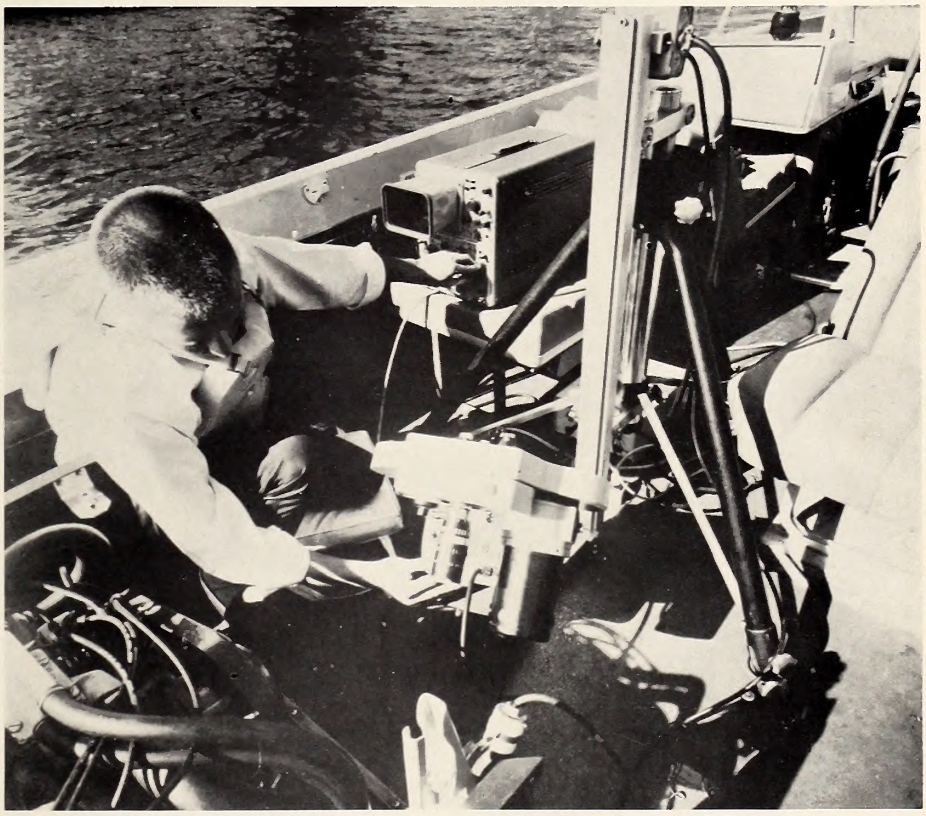
   Information concerning all equipment listed under 1 and 2 above may be obtained from the manufacturers' distributor for North Carolina, Carolina Sales Corporation, Greenville, North Carolina.

3. *Incinerator Toilet:* Destroilet, manufactured by Lemere Industries, Walworth, Wisconsin. Acceptable for use in well - ventilated areas on houseboats or other large vessels.

All marine sewage treatment equipment should be installed and operated in accordance with the manufacturer's recommendations.

TIRES FOR ALL TYPE PASSENGER CAR TRAILERS
(Includes Boat, Baggage and Special Type)
TIRE AND RIM ASSOCIATION STANDARD

| TIRE SIZE | PLY RATING | MAX. TIRE RATING | | TIRE SIZE | PLY RATING | MAX. TIRE RATING | |
|---|---|---|---|---|---|---|---|
| | | LOAD | INFLATION | | | LOAD | INFLATION |
| 4.10/3.50-6 | 4 | 360 | 65 | 5.30/4.50-7 | 4 | 620 | 55 |
| 4.80/4.00-7 | 4 | 520 | 65 | 5.30/4.50-12 | 4 | 915 | 55 |
| 4.80/4.00-8 | 2 | 380 | 30 | 5.70/5.00-8 | 4 | 710 | 50 |
| 4.80/4.00-8 | 4 | 600 | 65 | 5.70/5.00-8 | 6 | 900 | 75 |
| 4.80/4.00-8 | 6 | 725 | 90 | 5.70/5.00-8 | 8 | 1030 | 95 |
| 4.80/4.00-9 | 2 | 410 | 30 | 6.90/6.00-9 | 4 | 850 | 40 |
| 4.80/4.00-9 | 4 | 645 | 65 | 6.90/6.00-9 | 6 | 1080 | 60 |
| 4.80/4.00-12 | 4 | 790 | 65 | 6.90/6.00-9 | 10 | 1450 | 100 |
| 4.80/4.00-12 | 6 | 960 | 90 | 6.90/6.00-12 | 4 | 1010 | 40 |
| 5.30/4.50-6 | 2 | 355 | 25 | 6.90/6.00-12 | 6 | 1290 | 60 |
| 5.30/4.50-6 | 4 | 565 | 55 | 7.50-10 | 10 | 1780 | 75 |
| 5.30/4.50-7 | 2 | 385 | 25 | 9.00-10 | 10 | 2200 | 65 |



**This photo gives an insight into the scientific approach used by the boating industry. An ultra high speed camera and an oscillograph help the Outboard Marine Corp. engineer check performance.**

# Some Things Remain Unspoiled

by H. Lea Lawrence

I took a trip to the mountains of western North Carolina this past spring: a nostalgic trip to visit a trout stream I hadn't seen in 25 years.

Frankly, I had no idea what to expect, although it is only fair to admit that I was apprehensive, possibly for a reason no more mysterious than to be prepared for the worst. And after having a zero-range look at the various elements which are destroyers of beautiful waters, this apprehension wasn't without good foundation.

The final leg of the journey unleashed a flood of memories. First, I came abreast of the river where my earliest trips for bass and bluegill—mostly the latter—had been made. Next, as I left the river, I drove along a large stream to which my stream of long ago served as a tributary, still several miles away. The lower stretches of the stream were still polluted by industrial chemicals, just as they had been 25 years ago. Even then it was some distance above the point of discharge of pollutants that even marginal trout fishing could be found. I doubted that this continued to exist, for as I passed through the small town in which I had lived, then on to the outskirts, what had been the marginal water was now lined with houses, and a bridge spanned the pool where I had caught my first trout without my Dad along.

Yet beyond the town a few miles the water improved in appearance, and pieces of my memory began falling back into their proper places. Only now, driving along, the distance seemed vastly less than it had then.

Suddenly I was there at the point where "my" stream came tumbling off the mountain and joined the larger water. A small bridge crosses it there, and the stream looks deceptively tiny where it emerges from the tangle of laurel. I parked my car, then sat for a few minutes and recalled the times I had hitchhiked or walked to this point, as

eager and as excited as only a young fisherman can be, then headed up the narrow wagon road that angled steeply up the mountainside. The first pools I saw were always a temptation, but I knew that the best water lay a mile or so beyond where it seemed to me that no one else had ever fished.

I interrupted my reverie long enough to look at the wagon road, and strangely, happily, it looked even less used that it had before. Only a four-wheel drive vehicle could manage it, and there were no indications of even that type of use, at least not recently.

With my gear collected, I headed up the road, moving along through a woodland just beginning to show the pale green of spring. Here and there redbuds and serviceberry trees added splashes of brightness, and trillium, bloodroot, violets and trout lilies peeped through from the open spots beside the road. Ahead of me a ruffed grouse boomed from the cover, startling me momentarily, as they always do, even when I put them up before a dog. A chipmunk, apparently an early spring riser, scampered across the road and disappeared into a pile of rocks. In the distance a gray squirrel scolded something—possibly me —from a perch high in a beech tree. The air was cool and fresh and filled with the smells that only a mountain woodland and stream can create.

I reached the site of the first cabin almost before I knew it, probably because all was so quiet. I recalled this spot as a sort of small community, always bustling with children of all ages, as well as adults which represented at least three generations. But now the cabin stood vacant and falling down, and the little graveyard on the opposite hillside, once carefully tended and surrounded by flowers, was all but indiscernible in the weeds and sumac that had grown over it.

I moved on, wondering, in a vague way, where all these people had gone, those who had not died, and to what parts of the world their paths had led them.

The next, and last two, cabin sites were much the same, except that the first was entirely gone as the result of fire, and the second was as stark and as long-uninhabited as the first one I had encountered. And it suddenly seemed very lonely, even though I was seeking just what the loneliness implied, because my memory didn't include these changes.

The road ended at the last cabin, and I rigged up and eased into the pool next to the remnants of the old log barn. I had wanted to fish this spot in the past, yet I never tried because of the silent and somber-faced old mountaineer who would not return a friendly nod, much less a greeting. If he were watching me now it would be from very far away.

In a sense, it was the same boy who waded again into the stream, although what had then been a clumsy steel telescope rod with a warped reel and an ancient, sticky silk fly line had been replaced with a delicate fiberglass rod with a fine single action reel and a smooth, tapered nylon line. This and the other outfittings and gear which would have made the boy stare in disbelief. Yet the surplus of thumbs as I tied on the fly were quite the same as those which threaded on a worm 25 years ago.

I worked out line, dropped the dry fly at the head of the pool, then watched as it drifted slowly over the deeper part of the run. Had the trout which struck not hooked itself, I doubt that I would have snapped out of my near-trance to have set the hook myself.

The fish was another wonderful chunk of memory, a native brook that, while no more than nine inches in length, showed all the magical brilliance of those so long ago. I admired it for a moment, then slipped it gently back into the water with the silent hope that its kind would forever inhabit these waters.

I took two more trout from the pool, a rainbow and another brook, then moved on to find a particular stretch of stream I had fished most often. Along the way I took trout in almost every pool, none large, but all native fish, and each was carefully released.

A half a mile further, I came upon the small island where a friend of mine and I had camped out on our first "away-from-home - by - ourselves" venture. There is a sandy spot on the lower end of the island, and we pitched our pup tent there, built a fire and cooked an evening meal which consisted of delicious half-fried potatoes, succulent over-fried trout, and marvelous half-baked twist-on-a-stick bread. No meal was ever better, and as we lay in our sleeping bags later with the murmur of the stream and a whip-poor-will providing background music, we agreed that this was probably the loveliest spot on earth.

Thinking of this, I scuffed the toe of my wading shoe in the sand, just to see if possibly a couple of chunks of charred wood might remain from that memorable camp fire.

Then, somehow, I didn't want to fish anymore, even after coming a couple of hundred miles to find if the trout were still there and if the stream was still the same. The knowledge that all was well seemed totally satisfactory.

Walking back down the road as the sun sank behind the tall ridges and cast long shadows into the deep valley, I looked at the ghostly skeletons of the cabins, and the memory of the young boy walking along the same road seemed much more remote and far away than before. Yet it had been a deliberate attempt to revisit a memory, and I found that some things remain unspoiled, although surely not unchanged.

I came back the next day, this time in bright sunlight, and fished the stream again, probably more than anything else to verify my thoughts of the previous day. And it was there, just as I had recalled it from 25 years ago, and from yesterday. But I don't think I'll wait that long to visit it again. ▲▼

# A Tale of Tetanus

**by Derry Walker**

FOR the last hour, Otho Poole had been fishing a red worm on the bottom; during the previous hour he had fished first with a spoon and then with his favorite plug; the hour before that he had spent in the shallows with his flyrod. Three-hour results: *no results a-tawl.* Now a thunderstorm muttered in the south, and Otho guessed he had 15 minutes to get out of his pond or get wet. Mumbling something purple about fish and foul weather, the lanky, middle-aged farmer reeled in the red worm, and began gathering his gear. Rods folded, he looked around the bottom of the boat for any dropped articles, then snapped shut the tackle box and pushed toward the wooden landing across the pond.

Still mumbling in purple, he stepped onto his hand-made pier and guided the boat underneath it. A loud clap of thunder tumbled overhead and a fresh breeze pushed into the reeds and foliage around the pier as he tied his boat. Otho gathered his equipment and stared at the approaching storm as he walked toward his truck. His mind turned to the 12 acres of healthy tobacco which represented considerable sweat, and he hoped that the oncoming downpour would not be too much, too hard, too fast.

He was still looking up when his left foot squished into six inches of slimy mud; the mud's suction held his shoe, and his foot popped out of it and sank again into the slime. Otho growled and tugged his foot out of the mud, pulled his shoe out of the hole it had made, and limped to his truck as the first large raindrops plopped around him.

HE quickly threw his fishing gear into the truck, then yanked off the muddy sock and tossed it and the shoe onto the floorboard. As he slid into the seat and slammed the door, the rain came down in earnest, quickly drenched the body of the truck, then spattered across the boat landing and into the pond. Otho watched the huge raindrops turn the dusty, sun-bleached planks a wet dark brown; lily pads fluttered under the big beads of water around the landing. *Frawg strangler,* Otho thought. But there was no hail, and it would be a good shower if —Otho winced suddenly. He had lifted his bare left foot to the clutch pedal, and had started to push it when he felt a sharp pain on the bottom of his foot. Sliding away from the steering wheel, Otho placed his foot on his right knee, and wiped away the mud. There, in the center of his arch, he found a small puncture, about the diameter of a pencil eraser. No blood or laceration, just a puncture, the depth of which he could not tell.

*Well, that's all I need,* he thought. *Three hours and no fish, rain'll probably drown my tobacco, and now I step in a hole and I'll probably get lockjaw.* He punctuated his thoughts with still more purple language as he ground the truck into gear, using his heel on the clutch, and headed home.

Agnes Poole watched from the kitchen as her husband limped onto the back porch and set his fishing tackle in a corner.

"What's the matter with your foot?" she called, over the sound of the rain.

"Stuck a hole in it," was the answer as Otho heeled-and-toed-it through the kitchen.

"Is it bad?" she asked as she stirred the green beans.

"Just a hole, just a hole."

"Is it bleeding?"

"Just a hole."

Agnes followed Otho into the bathroom where he seated himself on the side of the tub and began running water over the injured foot.

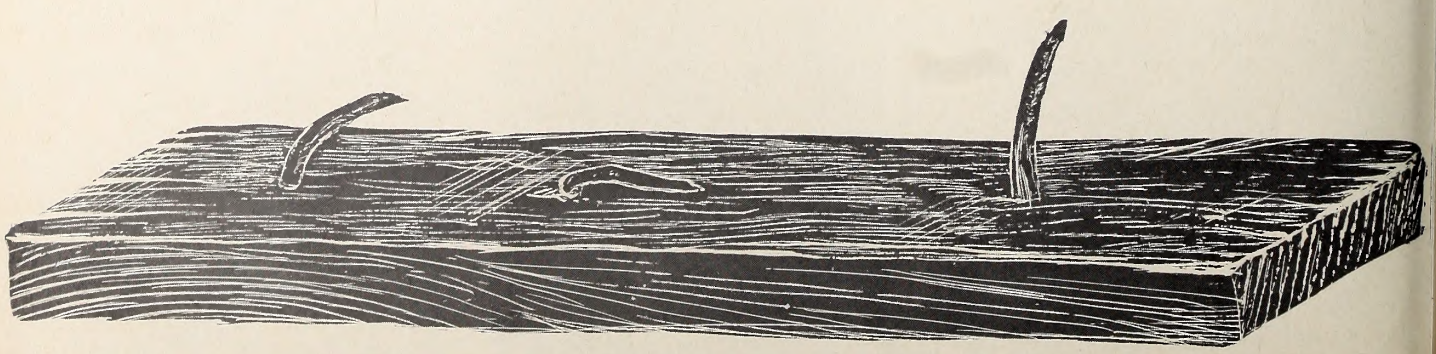
"Let me see," she said, and Otho turned and stuck his foot out.

"Don't drip all over the floor, I can bend over and look at it." Agnes examined the wound carefully and then squeezed the skin around it. Don't squeeze it," Otho howled.

"Needs cleaning out," Agnes declared.

"That's what I'm doing."

"You can't clean that out," the wife countered.



"That should be looked at. You ought to have a tetanus shot."

"I don't need a shot," said Otho, reaching for the soap.

"I know," Agnes fussed, "That's what we'll put on your tombstone some day. 'He didn't need a shot.'" Agnes turned and sniffed. "Lord, my beans," she gasped and hurried out.

"'Tend to your beans and I'll 'tend to my foot," Otho muttered as he scrubbed. Obviously, there were days like this.

THE new wing of the county hospital gleamed. It was difficult to conceive of any suffering or disease in such a clean, bright environment. Agnes sat on a cushioned chair in the waiting area across from the Nurse's Station. She watched as Doctor Livingstone gave quiet instructions to a nurse who made notes on a stainless steel pad. Agnes squeezed her purse strap nervously. She had not considered seriously the possibility of *lockjaw* even when Otho began to complain ten days after the fishing accident. Otho hadn't thought about it, either, even though he developed the characteristic symptom: *stiffness of the jaw.* His difficulty in swallowing, restlessness, and chills he attributed to "the flu, most likely." He didn't have much temperature, so it appeared that this was nothing serious. Then the first convulsion struck. Now, here they were, or here she was—Otho was in one of the rooms, sedated, with a nurse keeping constant watch.

"Agnes," Doctor Livingstone said as he sat down beside her, "you look a little rough. Have you had any rest?"

"I had a little nap," she said. "Do you have anything to tell me?"

"Well, we've started giving him the antitoxin. First, you know, we had to determine whether or not he could take it. Some people have allergic reactions to the antitoxin, and we have to go very slowly to make sure we don't add to our problems. Otho doesn't appear to have any sensitivity to it, though, so we're going ahead."

"How long will it take to—to cure him?"

"Well, that depends on several things, Agnes." The doctor crossed his legs and scratched his knee. The tall, middle-aged man looked tired, and Agnes noticed for the first time how gray his hair had gotten in the last few years. The lines on his face were becoming wrinkles, his shoulders were not as broad as they once were, but his eyes were clear and young.

"I believe we're getting the therapy started in time to head off this stuff before it can get completely out of hand. I have a good nurse with him, and another one coming to relieve her. He'll have a nurse around the clock, and I plan to sleep here myself. I think you can guess why."

"The convulsions?" Agnes asked wearily. The doctor nodded.

"He's sedated now, and we keep a very close watch on him. If he shows signs of an oncoming convulsion, we increase the sedation and hope, by doing so, to prevent it. It's the recurrent convulsions that make this a nip and tuck battle. The convulsions could . . . well, take him before the antitoxin can help. But, as I said, he's doing well and there are no complications so far, so I think he'll be fine. He's tough as a six-ply tire, anyway." Agnes' lips showed a small smile. At least the news was not discouraging, and she felt that Dr. Livingstone had been honest with her.

"Go to the coffee shop and get some soup and a sandwich," the doctor instructed in an easy tone. "We'll talk some more when you get back."

THE door swung shut behind Agnes, and Jonathan Livingstone leaned forward on the chair and stared at the shiny floor. For five minutes he concentrated on the therapy he had prescribed for Otho Poole; *tetanus antitoxin dosage, types of drugs for sedation and dosage, instructions to the nurse, pneumonia must be prevented if possible* . . . Satisfied, he rose and walked away to examine another patient.

Six weeks later, Otho Poole sat on the edge of an examination table in Doctor Livingstone's office, staring at the Latin inscriptions on the collection of documents hanging on the wall. The doctor listened through his stethoscope, and then removed it and said:

"Button up your shirt, you old fox; you're as healthy as a show dog."

"Never been been sick a day in my life," Otho declared.

"Yeah," the doctor said, "but you sure were half dead for a while there. I'll tell you something. I've started getting after all my patients to get their tetanus immunization up to date since that episode of yours. Man, I never want to treat another lockjaw."

"Well you'll never have to treat me for it again, I'll guarantee that," said Otho, sliding off the table. "There were times when I thought I'd have to get *better* to *die*."

"Are the fish biting in your pond now?"

"Want the truth?" Otho grinned.

"For once, yes," the doctor said, eyeing his patient. Otho dropped to a whisper:

"They are might' near jumpin' into the boat. Whatever you do, don't drag your hand in the water . . . they'll pull you in." Doctor Livingstone shook his head wearily.

"I think I'll slip down there this evening and give it a try."

"Come on. I'll be down there myself. Doctor's orders."

"All right. I'll be there if nothing happens," the doctor said as he turned to the door.

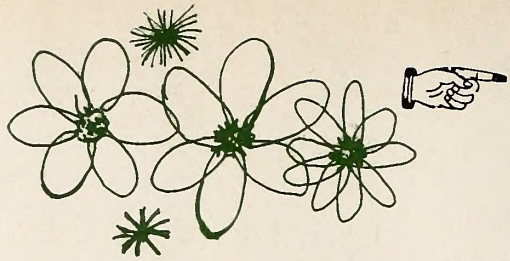
"Doc?" Otho began.

"Yes?"

"Is your tetanus im-mu-ni-zay-shun up to date?"

"Why, it's . . . " The doctor stopped, stared at his patient for a few seconds, then turned and walked out of the treatment room, rolling up his sleeve as he went. ◆

# Don't Eat the Daisies!



**They might make you very sick . . .**

**by Luther Partin**

IT'S that time of year again when we caution against sunburn, windburn, poison ivy, chiggers, ticks, snakes and a host of other misfortunes that may lie in wait for people seeking enjoyment of the outdoors this summer.

But when the record is examined, as we are urged to do in an election year, we find that far greater dangers may be with us all year from everyday contacts we may not have suspected.

The last decade has seen great progress in identifying casual agents involved in puzzling cases of sickness or death.

Much of the emphasis has been placed on identifying toxic elements associated with chemical contacts, primarily pesticides and herbicides. But at the same time, the National Safety Council reports a surprisingly large number of cases of sickness or death caused by chewing or eating plants containing toxic materials.

We are informed by the early writers of our history that the Indians used various plants for food that we now consider poisonous. They, too, knew these plants were poisonous; however, their selection, preparation and cooking techniques were usually adequate to remove the danger.

Of course, if someone wanted to end it all in what was considered to be high style, (Mod, if you prefer) by the Delaware tribe, a gourd of tea brewed from moutain laurel was the order of the day.

IN 1961, a new edition of the internationally famous cookbook, *Larousse Gastronomique,* published the suggestion that rhubarb leaves could be eaten like spinach, cabbage, or any garden green.

Safety authorities in this country hit the ceiling. The rhubarb stalk is commonly used in cooking, and is quite harmless, but the leaves are another matter. They contain oxalic acid, a toxic material that crystalizes in the kidneys and can cause serious danger. The concentration of this chemical in the leaf is low, but eating several of them could cause ill effects. Deaths resulting from eating rhubarb leaves are well documented in this country, according to the National Safety Council.

A group of 30 boys from a midwest orphanage returned from a carefree afternoon's outing and in a matter of hours orphanage officials had a nightmare on their hands. Some of the boys began to laugh like idiots and bark like dogs. Others crawled under their beds, crying and moaning. A doctor gave them drugs and induced vomiting. Most of the boys were normal the next day and all were completely recovered in three days.

Investigations revealed that they had found a patch of jimsonweed, and as boys are apt to do, decided to eat some of the leaves. All parts of the jimsonweed are poisonous, especially the leaves and seeds. Jimsonweed is very common in this state, particularly in open sunny spots where the soil is high in organic matter. It is probably better known as "stink weed" in many places. The large, funnel-shaped white flowers are very attractive, but deadly, as evidenced by a number of children who have become ill after sucking the nectar. The mistaken belief that tea brewed from the seeds and leaves has curative powers has caused the death of children and adults.

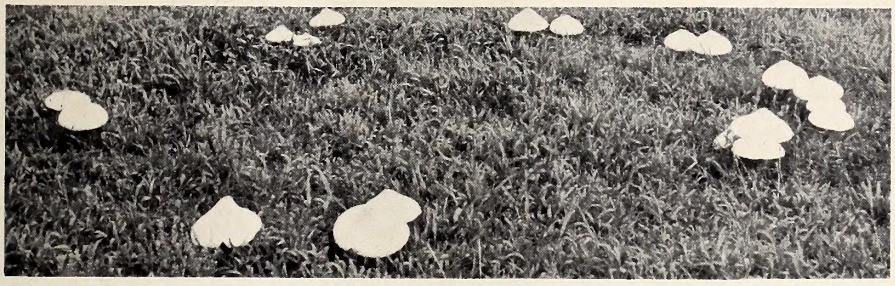
THE Public Health Service reports that about 12,000 children each year eat potentially poisonous plants. Most of these plants are found in the home, yard, or vacant lots nearby. The stage of growth, the part of the plant and the quantity eaten are all variables that probably keep the number of identifiable cases of poisoning relatively low.

The average farm youngster grows up chewing on about everything that doesn't have thorns. If we may speculate a bit, probably many cases of upset stomach, diarrhea, or just plain depression or nervousness could be traced to this seemingly, innocuous pastime.

Cherry twigs and leaves contain cyanide and peach leaves contain hydrocyanic acid. And for lo, these many years, we thought that these were safe, normal items to be included in a growing boy's list of things to chew on while passing a long summer day. Tomatoes and Irish potatoes are eaten in most homes in the country. It may come as a surprise to learn they are both close relatives of the deadly nightshade. The tomato fruit and the potato tubers are quite harmless, but the stems and foliage of both contain toxic compounds.

Small children, from the crawling stage up, may have access to poisonous plants in the home or yard. Mistletoe, for example, is used extensively for decorating homes during the Christmas season. The berries can be fatal, depending on the quantity eaten. Eating the leaves of another typ-

**Although the "fiddlehead" stage of some ferns is eaten, some varieties are dangerous to livestock. Elderberry foliage, buds and roots (right) and jack-in-the-pulpit (far right) are also listed as toxic when eaten.**



**Few of us are foolhardy enough to pick and eat mushrooms without making absolutely certain that they are not poisonous. Learn the various kinds, and keep children away from them.**

ically Christmas plant, poinsettia, can also cause death.

MANY ornamental plants with toxic parts used in the home or as foundations or specimen plantings outside are especially attractive to children because of their colorful leaves, flowers, berries or fragrance. Some examples are azaleas, rhododendron, laurels, Lantana camera (red sage), jessamine, yew and golden chain. The leaves and acorns of oaks and the sprouts, leaves and bark of both black locust and elderberry are toxic. The bulbs of hyacinth, narcissus and daffodils are quite dangerous.

Oleander contains a dangerous heart stimulant. People have died from eating meat cooked on oleander twigs. Foxglove leaves contain digitalis, a quite useful and safe drug when administered by a physician, but serious illness or death may result from eating the leaves.

Seeds are often fascinating to children and some of them are quite lethal. It's enough to make safety officials pull their hair out when they find jewelry made from the rosary pea and castor bean seed. Both are highly toxic. Castor bean seed may be purchased at local seed supply outlets. They are very popular with the "green thumb group" because of the large, lush greenery produced in one season. Yet only one seed contains enough of the lethal poison, ricin, to kill a child. Wisteria seeds have recently been added to the list of dangerous materials. Two seeds can cause acute illness in children.

We were visiting in a home a few weeks ago when the head of the house, with pardonable pride, displayed an attractive specimen of dieffenbachia. She was considerably taken aback to learn that the plant, also called "dumb cane," contained calcium oxalate, a dangerous chemical that causes swelling of the tongue and mouth tissues. If the base of the tongue becomes enlarged enough to block air passages, fatal results may follow.

In the flower garden, we find another host of plants placed on the dangerous list by the National Safety Council. Included are larkspur, monks-hood, Autumn crocus, Star-of-Bethlehem, Lily-of-the-valley, Iris, bleeding heart and Dutchman's breeches. In wooded and waste areas, elderberry, jack-in-the-pulpit, moonseed, may apple and the deadly common nightshade get the same label along with the swamp loving hemlock and the buttercups and poison hemlocks of the fields.

To include all the native plants of the state that are considered to be poisonsous would be beyond the limits of this publication. The term "poisonous" includes effects ranging from simple allergies to serious internal chemical and physiological disturbances. There are at least 40 plants in the state capable of causing some degree of dermatitis, varying from a minor skin irritation to a painful inflamation with blisters for weeks.

There are maybe a dozen plants in this state that can cause mechanical injury—the sandbur for example. There are several hundred more capable of causing some degree of internal poisoning in humans or livestock.

The list of potentially dangerous plants is quite imposing and thanks to the Poison Control Centers that have been established in this country, new ones are being recognized each year. Obviously, we can't isolate ourselves from all plants. But we can keep plants out of the reach of very young children who are apt to put anything they get in their hands in their mouths. And we can teach other children to never put any flowers, leaves, stems, roots or berries in their mouths unless they know the particular plant part is commonly used for food and further, that it is safe in its present form. ◆◆

# Sweet Gum

by Mrs. Grace S. Draper

OF all the interesting and intricately shaped leaves that Nature has evolved over millions of years, perhaps one of the loveliest came about through that mathematical phenomenon, the numeral *five*, and the sweet gum tree (*Liquidambar styraciflua* L.) is the fortunate possessor of this five-lobed, star-shaped leaf. This feature alone would place it in a special category, in our mind's eye, with others of Nature's versatile five forms, such as the many blossoms containing five petals, a raccoon's five-toed footprints — an unmistakable trademark in the creek sand, or a baby's hand with its five precious fingers.

But the sweet gum tree also has other features which set it apart from its many colleagues in the southern forests, one of these being the spicy, aromatic odor of the leaves. It is said that Central American Indians used incense from this tree in religious ceremonies, and its sap has been used as a remedy for catarrh and in the making of chewing gum.

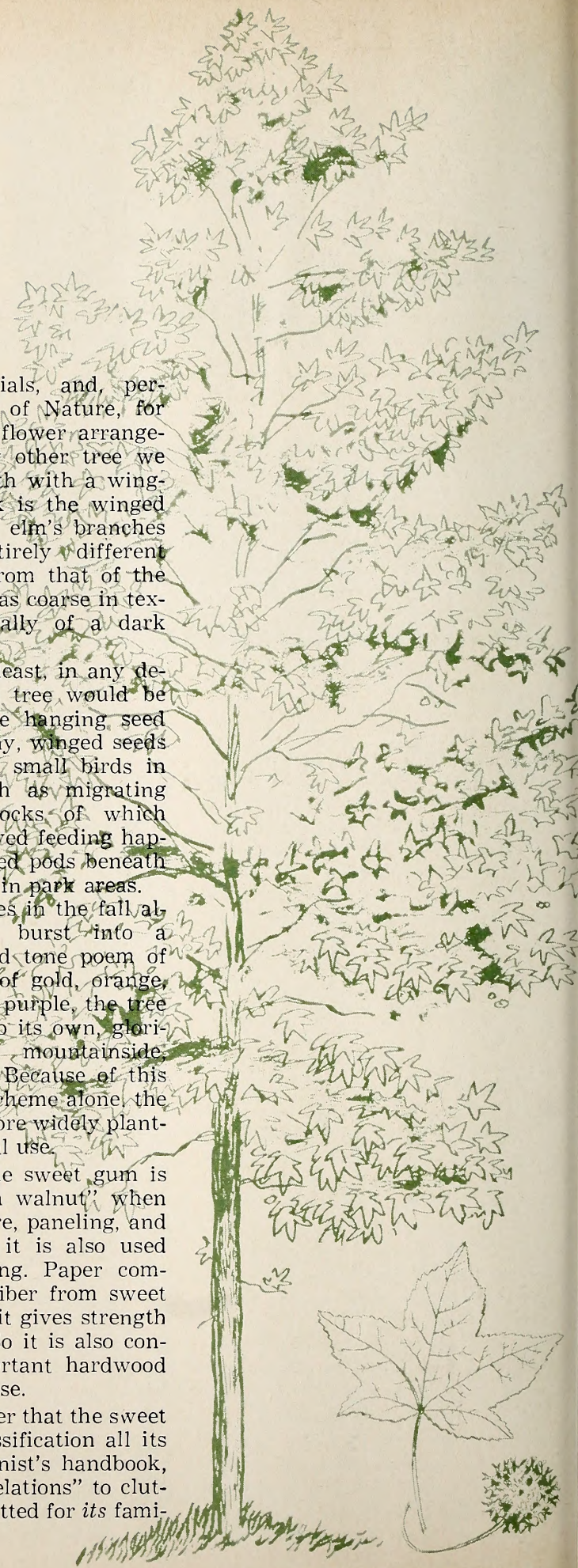
Another distinguishing feature is the corky bark which begins developing during the second year's growth, and may increase in width and thickness for many years. Because of the interesting growth pattern of the branches, and this attractive grey, textured bark, sweet gum branches rate especially high in favor with flower arrangers who use them for rhythm and linear design. Unusual growth groupings of such branches are carefully hoarded, along with other commonplace materials, and, perhaps, "discards" of Nature, for repeated use in flower arrangements. The only other tree we have in the South with a wing-like, ridged bark is the winged elm; the winged elm's branches assume an entirely different growth design from that of the sweet gum—not as coarse in texture, and generally of a dark brown color.

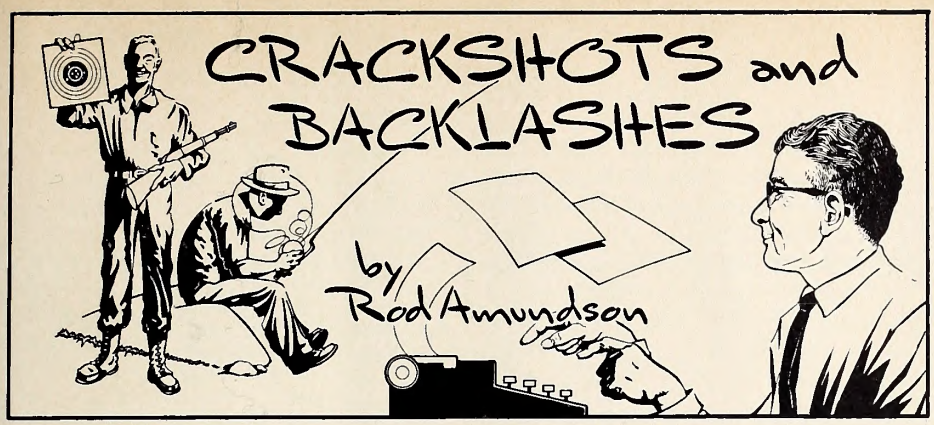
Last, but not least, in any description of this tree would be its porcupine-like hanging seed globes, whose tiny, winged seeds furnish food for small birds in the winter, such as migrating pine siskins, flocks of which have been observed feeding happily on fallen seed pods beneath sweet gum trees in park areas.

When its leaves in the fall almost overnight burst into a gleaming blended tone poem of color in shades of gold, orange, red, bronze, and purple, the tree really comes into its own, glorifying roadside, mountainside, park, and yard. Because of this beautiful color scheme alone, the tree should be more widely planted for ornamental use.

Wood from the sweet gum is known as "satin walnut" when used for furniture, paneling, and cabinet-making; it is also used for house flooring. Paper companies use the fiber from sweet gum in pulp, as it gives strength and flexibility. So it is also considered an important hardwood for commercial use.

Is it any wonder that the sweet gum rates a classification all its own in the botanist's handbook, with no "close relations" to clutter the pages allotted for *its* family tree? ⬍






**Camping—It Can Be Fun?**

If you've settled on a camping trip for this summer's vacation, don't bother to read the next few paragraphs. You are going camping anyway, and nothing short of Hades and high tide can deter you. Camping can be fun. It has to be, or Americans by increasing hundreds of thousands wouldn't be doing it, or trying, every year!

Sit quietly for a while, and ponder all of the hazards you might encounter on any kind of vacation. The possibilities are appalling. Foreign travel? Okay, if you want to further unplug the dollar drain, and gamble you will get out of a particular foreign country before everyone there goes on strike.

Domestic travel? This country is big enough to break you up in gasoline credit cards alone, not to mention meals, lodging, et cetera ad infinitum.

Unless you go afoot, any kind of travel-associated vacation will get you mixed up in traffic jams, flat tires, wrecks, mislaid tickets, unconfirmed reservations, lost luggage, and just plain lost. But you can get lost on a hike, or worse, clobbered by a passing vehicle just as you step off the curb.

There aren't many alternatives left. Mountain climbing? You can camp on mountains. Beaching? You can camp on the beach in a few well-crowded areas where camping facilities are available.

So why not just plain, old-fashioned camping out in the woods, roughing it somewhere, anywhere away from the madding crowd? Statisitically camping is about as safe as a trip to the backyard barbecue grill for steak cremation purposes; and even there you can get your cottonpickin' coupon clippin' fingers burned. So, let's go camping!

Let's dispose of ordinary, run-of-the-mill, camping-associated hazards first. The others will take care of themselves one way or another while you are on your way to or from the camping area.

There is *sunburn,* but you can acquire this in your backyard or on the polar ice cap, and if you don't know the prevention or treatment of this particular infliction you don't need a vacation.

*Stubbed toes* can be prevented by watching where in Sam Hill you are going, or by wearing shoes. Treatment is simple. Sit down on the other foot and howl to high Heaven. (Break out the first aid kit if you can find it.)

*Burnt fingers*: If you must cook over an open fire, make it a small one, or use long-handled pots and pans and asbestos mittens or potholders. (Look for first aid kit.)

*Spilled, boiling coffee*: This danger occurs mostly around campfires. At home your coffee is dripped, percolated, filtered, steeped, or spooned out of a jar of the instant variety; but in camping, coffee is customarily boiled in huge cauldrons over a roaring fire with the roasted, coarse-cut grounds given freedom to swirl or settle in the brew. Spilled, boiling coffee can affect bare feet, fingers, hands, and other parts of the anatomy. (Search again for first aid kit.)

*Poison ivy, etc.*: Plants of this variety have an affinity for camp-sites and campers. Most infections from these will itch

**Yup, it sure is! Poison ivy: please do not touch. Cures are hard to come by.**

severely, and will likely be given severe scratching while you continue the search for the first aid kit. Short fingernails may be medicinally beneficial, in the long run, if the itching is severe and persistent.

*Snake bite*: If you camp in a popular campsite, chances of encountering a snake within 1,000 yards of the area are almost zero. Snakes do not like people any more than people like snakes, and all self-respecting reptiles, including turtles and lizards, will have evacuated the general locality weeks before you get there—or have been collected and incarcerated by budding young biologists.

There are a few other minor hazards such as, mosquitoes, chiggers, ticks, mites, lice, noisy neighbors and nosey bears, but all, with proper potions and pesticides and diligent diplomacy may be appropriately disposed of.

The logistics involved in a camping trip are wondrous to behold. Odds are strongly in favor of your bringing things you do not need and needing things you did not bring; like first aid kits, rain gear, and warm underwear.

They say "you can't take it with you," but this doesn't apply to a camping trip. You are swapping your comfortable, well-furnished home for the bare essentials in a battle with the elements. A flimsy tent for that solid, leak-proof, beloved (if

## KNOW YOUR PROTECTOR

**Cleat E. Poole**

Cleat E. Poole was born July 22, 1918 and is the son of Mr. and Mrs. Dewitt Poole. Cleat is a lifelong native of Montgomery County, was educated in the Troy schools, and served in World War II. He married the former Virginia Dare Poole of Biscoe, and they have two daughters, Shirley 18 and Sue 14.

Prior to employment with the Wildlife Resources Commission, Poole was a deputy sheriff in Montgomery County. He was assigned as a wildlife protector at Troy on September 15, 1943. He has completed the Wildlife Protector Training School and all In-service Training Schools at the Institute of Government at Chapel Hill.

Cleat Poole is an excellent law enforcement officer and is held in high esteem by the people in his assigned patrol area.

Church and civic functions occupy much of Cleat's spare time. He is a member of Troy Masonic Lodge 718 and of the Southeastern Association of Game and Fish Commissioners. He extends his service to the community, and through his association with the First Baptist Church of Troy, he rounds out his public service.

## DIVISION ENFORCEMENT RECORD FOR APRIL, 1968

**HUNTING & FISHING**

| | |
|---|---|
| Persons checked | 64,661 |
| Total prosecutions | 1,771 |
| Total convictions | 1,734 |
| Total cases not guilty | 19 |
| Total cases nol prossed | 17 |
| Total cases dismissed | 1 |
| Total fines collected | $ 4,927.95 |
| Total costs collected | $16,787.90 |

**BOATING**

| | |
|---|---|
| Persons checked | 12,511 |
| Total prosecutions | 385 |
| Total convictions | 380 |
| Total cases not guilty | 3 |
| Total cases nol prossed | 2 |
| Total cases dismissed | 0 |
| Total fines collected | $ 695.00 |
| Total costs collected | $3,686.85 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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mortgaged) roof . . . You will feel a strong compulsion to bring along everything that is not firmly nailed down.

But food tastes better if cooked and eaten beside an open fire. With enough smoke in your eyes even the coffee tastes good. You can eat more without gaining weight, you get more exercise, you sleep better, you arise earlier, and you retire earlier—if you can. You came out here to "get away from it all"! A dime will get you a dollar this place is ten times as crowded as your home neighborhood. But it is crowded with people who came here for the same reason you did. They probably don't know any more about camping than you do. But always, somewhere around the camp, there is someone who knows how to get wet wood to burn, explain the eerie scream of screech owls, and regale the youngsters with bedtime stories that let you get some sleep.

Meanwhile, Ol' Rover will likely spend your vacation in the relative safety, comfort, and conviviality of a boarding kennel. All he will need for complete recovery from the trip is a bath and a romp around the yard.

So what does he need camping for? He was born with all of the necessary equipment, and you weren't. You have to improvise yours or carry it along.

### Spicy Bite

DEAR SIRS:

This is something that might be of interest, or might be a known fact, but have you ever heard of blue jays eating honeybees?

In a front porch column we have a nest of wild bees, and the jays line up to get them. A jay will fly by the porch, snatch a bee in mid-air, and fly to a nearby perch to devour his catch. It's almost as if they stood in line, each waiting his turn. Surely, they must be immune to the bee poison. I have never seen any other kind of bird try this. Do you think this is because of the jay's more varied eating habits, slightly superior intelligence, etc.?

Thank you.

Jerry Willis,
Morehead City.

The varied, almost omnivorous eating habits of the bluejay may be the answer. Many other birds eat bees, notably the kingbird. These, in many areas earn the local name "bee martin." As to the bluejay's intelligence, this bird is not protected by law other than city ordinances, yet seems to be in something like abundance throughout most of North America.—Ed.

### Crow's Friend

DEAR SIRS:

I am writing you concerning the killing of crows. I think he is one of our smartest birds, and he is disappearing fast. I hate to see our wildlife destroyed. The crows are being killed and piled on road banks. We have over 200 acres of land, and we have only a pair or two left. They might have been a pest at one time, but not any more.

Thanks very much.

Michael Evans,
Statesville.

Someday crows, like other vanishing "varmints" such as prairie dogs and woodchucks, will need to be placed under legal protection.—Ed.

### Deer Contest

DEAR SIRS:

Our club would like to know

whether North Carolina has a statewide deer contest such as the one held in Virginia. As we hunt on the Virginia-Carolina border in Northampton County, North Carolina, and Southampton County, Virginia, we buy licenses for both states. Being a Virginia resident myself I am not familiar with North Carolina contests.

This season one of our men, "Doc" Glover, killed a deer which, in my opinion, could score high in any contest, and might even place high in state records. We would like to know where we can get this deer's rack measured officially; also for Boone and Crockett records.

I am enclosing a picture of the deer [photo not usable, sorry] whose rack measured 24" at the widest point and had 14 points. He was killed near Margaretsville, North Carolina, which is "Doc's" and his son, Tommy's, home. Any information you can give me will be greatly appreciated by the whole club.

John Raymond,
Chesapeake, Virginia.

North Carolina does not have this type of contest. It does have some trophy-size bucks, however, and enough interest among Tarheel deer hunters could get something like this going.—Ed.

### Bird Notes

GENTLEMEN:

Early last year we read an article in the WILDLIFE publication about bluebirds. We sent for the plans for the bluebird houses and built five of them. Two we placed on our property, two our neighbor set up, and one at my father's. We also made feeders, using the recipe of peanut butter, bacon drippings, and cornmeal.

Last year a pair of bluebirds nested in one of our neighbor's houses and in one of ours. This year we again have them in these two houses, and at present the parent birds are feeding young in our birdhouse.

By the way, all the other birds, including a red-headed woodpecker, blue jays, mockingbirds, thrashers, etc., enjoy this peanut butter mixture. This morning a black-capped chickadee joined in the parade at the feeder.

We have had a problem with other birds pecking at the opening of the bluebird houses enlarging the holes. I've tacked on a piece of light aluminum with the same size opening on the front of the house—and so far it seems to have solved the problem.

Peter C. Lobbregt, Jr.,
Southern Pines.

### Goose Outlook Not Bright

DEAR SIR:

On page 11 of the May issue you make reference to the Lake Mattamuskeet waterfowl situation.

I have gone there for the last eight years. My brother and uncle have gone there for 22 consecutive years. We have always stayed for a week at a time in Fairfield. We have had a number of friends who have gone there, but have given up on an ever-increasing bad situation.

Last year when we got to Fairfield, Hyde County, we were informed that shooting had to stop at 4:00 P.M. This was a county action put in effect just two weeks before the season opened. We will check into this this fall before we get reservations and hooked into a bad situation.

It is noted that you make the following statement: "Consideration is being given to modification of the hunts so as to at least improve success rate even if we cannot improve total kill."

I shall appreciate any information on the plans you have, or the state or county, to improve the waterfowl situation in North Carolina around Lake Mattamuskeet.

Thomas M. Acken,
Washington, D. C.

You can expect about the same situation at Mattamuskeet this fall as you encountered last year. But best-laid plans will not bear fruit until total waterfowl management and harvest practices have become an accomplished fact *throughout the range* of the species.—Ed.

### Eyes or Ears?

DEAR SIRS:

Please help me settle an argument with some friends of mine. Does a robin see or hear a worm before he pulls it out of the ground? They sure do a good job at it either way.

Thanks.

Leo A. Donni,
Asheville.

No one knows for sure. Worms

**The tiniest movement of the bird's food is detected by sharp eyes.**

probably don't make enough noise that even a keen-eared robin could hear. The robin's eyes are located on the side of the head. When he seems to be listening intently it is more likely he is cocking his head to get a bird's-eye close-up view of the worm. We'd have to go for seeing rather than hearing.—Ed.


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# SAFETY FIRST
# boating's golden rule

## OBSERVE THESE SAFETY RULES—

1 · Know your boat
2 · Don't overload
3 · Keep a good lookout
4 · Operate at safe speeds
5 · Respect the weather
6 · Take sufficient fuel
7 · Keep your boat in shape
8 · Carry necessary equipment
9 · Secure your boat properly
10 · Obey the law

- You are responsible for your wash and wake.
- Reckless operation is punishable by fine and imprisonment.
- Boats in your *"Danger Zone"* have right-of-way and should hold course and speed. Learn and exchange proper whistle signals to avoid misunderstanding.

- An overtaking boat is the burdened vessel.
- Sailboats have right-of-way except when overtaking. Pass them wide to leeward.
- Large vessels and tows are not quickly maneuverable. Keep clear—give them room.

**Be courteous and careful at all times!**

**★NATIONAL★SAFE★BOATING★WEEK★**

**June 30 ★ ★ ★ ★ July 6**

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# Wildlife IN NORTH CAROLINA

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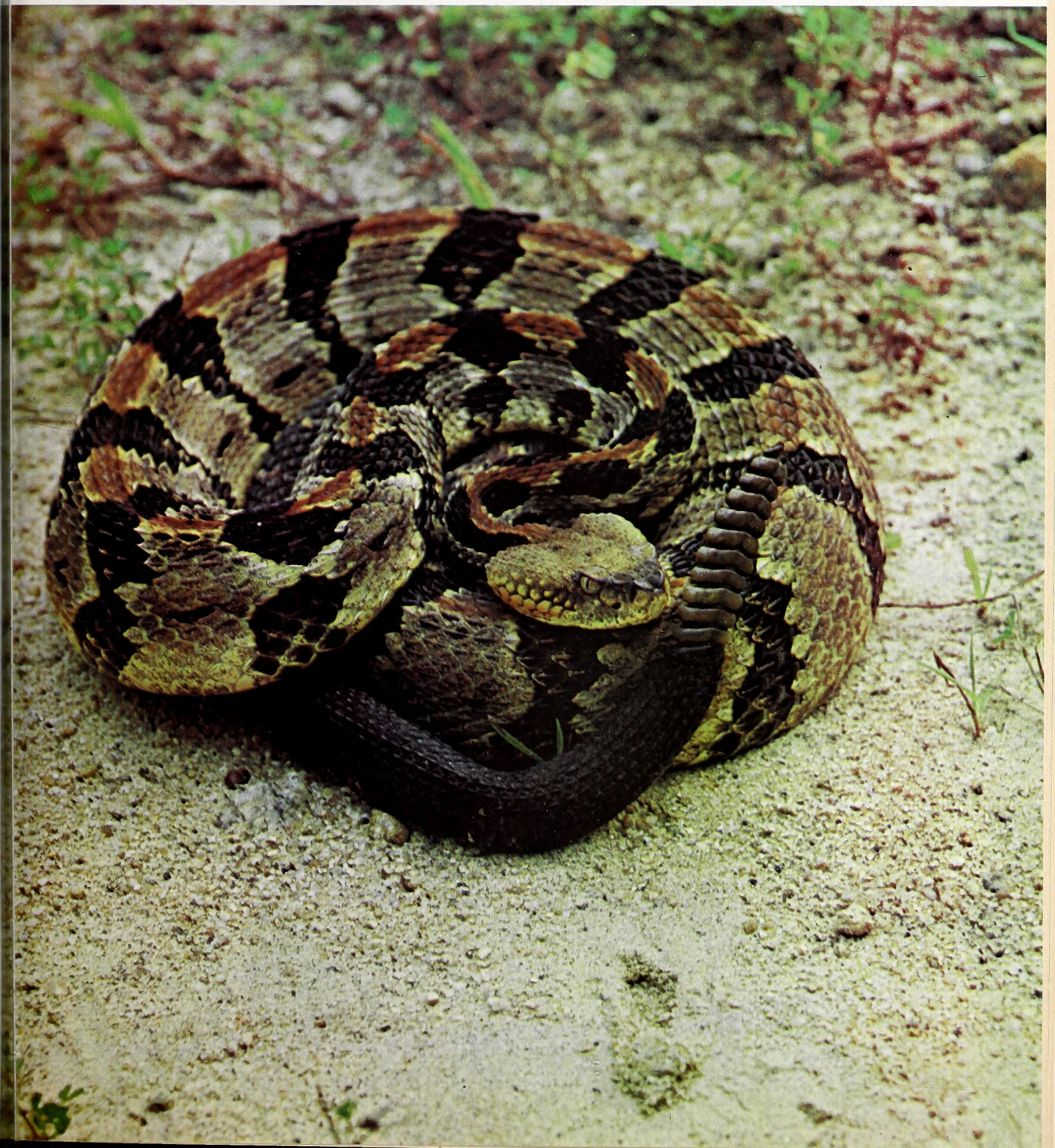

PHOTO BY TOM JACKSON

*Midsummer Trout – The Linville River*

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VOL. XXXII, NO. 8 AUGUST, 1968

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EDITORIAL STAFF

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The canebrake rattlesnake is often described as the lowland counterpart of the timber rattlesnake. Its range in North Carolina is roughly the eastern half of the state and it is at home in the cane thickets and swamplands. A five-footer is a big one, with the maximum size recorded at 74½ inches. It eats rodents, other small mammals and birds. Photograph by Jack Dermid.

# The Crab That Isn't

**by Ronald Rood**

AT first I thought it was only a large wave-rounded stone glistening on the beach. But when I looked again the stone had moved.

Watching now, I could see it inch its way forward. Then the moonlight revealed another creature just like it emerging from the waves. And another. And another.

This was too much for one little boy, so I ran to get my father. Together, on that Connecticut shore, we watched one of the oldest journeys on Earth—the annual pilgrimage of the horseshoe crab.

It was a fascinating night, one I'll never forget. Even today, though I've seen it several times since, that invasion from the sea has an unearthly aura.

It is a phenomenon you too might witness on a visit to the Atlantic Coast at the opportune time. For each year, from May to July and from Nova Scotia to Yucatan, the horseshoe crab comes ashore to spawn.

The horseshoe crab itself is unique. About the size and shape of an inverted soup plate, it is hinged across the middle and has a long, stiff spine attached by a swivel joint at the rear edge of its shell. The spine gives it one name, swordtail. Its hollowed-out shape gives it another, pan crab, since fishermen use it for bailing water out of their boats.

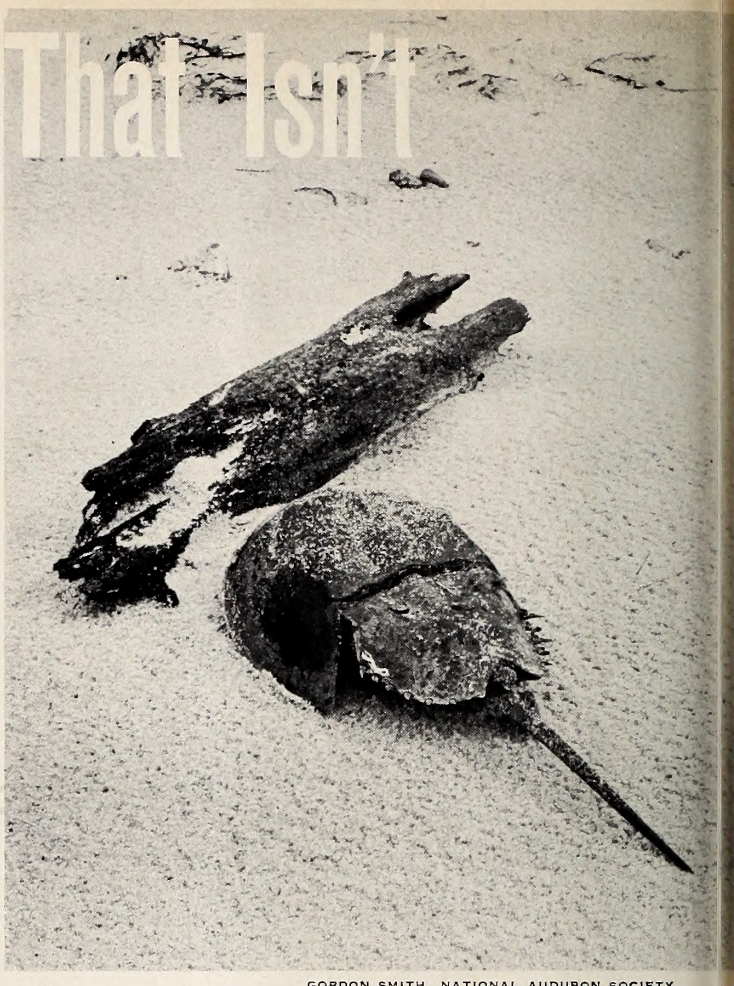
Grasp the spine and turn the creature over. Underneath are a dozen legs, most of them equipped with thin claws, plus a flap hiding nearly two hundred flattened gills arranged like the leaves of a book.

As you hold the crab up, take note of one more thing: This is a creature from another world—the world of 250 million years ago. In your hands is a living time machine.

While nature experimented with dinosaurs and dodos, the horseshoe crab merely stuck to one excellent principle—that it is hard for an enemy to pick up an overturned bowl, especially when that bowl is hanging on underneath for all it's worth. But even a living fossil has to eat and breathe and reproduce if it wants to stay alive. So it has a full array of special equipment.

Consider how the horseshoe crab finds its way to shore. Delicately tuned to the pull of gravity, it has a keen sense of slope. It wanders over the varying slants of the ocean floor in perhaps thirty feet of water until it chances on the one slope which will lead it to shore.

The males seem to get the urge first. One night on Long Island I noticed dozens of horseshoe crabs in the wash of the breakers. Picking up a few of them, I discovered that each had claspers, looking like swollen little thumbs, on a forward pair of legs. These claspers, peculiar to the adult males, allow them to cling to the rear of the arriving females. Occasionally an overeager male would grasp the shell of another male. But lacking results after a few moments, he would resume his vigil.



GORDON SMITH, NATIONAL AUDUBON SOCIETY

**The horseshoe crab looks like a miniature armored vehicle, or more like something out of the world of 250 million years ago.**

The males may wait vainly several nights. Retiring to deeper water during the day, they return each evening, like local swains on a street corner. Dr. Carl N. Shuster, Jr., of the University of Rhode Island, who has studied the horseshoe crab, refers to this as a marine stag line.

The females may be nearly half again as large as the males. One female I measured was just under 30 inches from her dishpan nose to the tip of her spike. And when the female horseshoe crabs finally begin to arrive, the waiting bachelors cluster around each, trying to be first on the tandem climb up the beach which is the prelude to egg-laying. The wash of the waves may alternately cover and uncover eight or ten male crabs around a single female.

When the slow-motion melee straightens out, the female heads for the shore. Clinging to her is a single male. But often, in a "me too" reaction, a second male attaches to the rear of the first. Still

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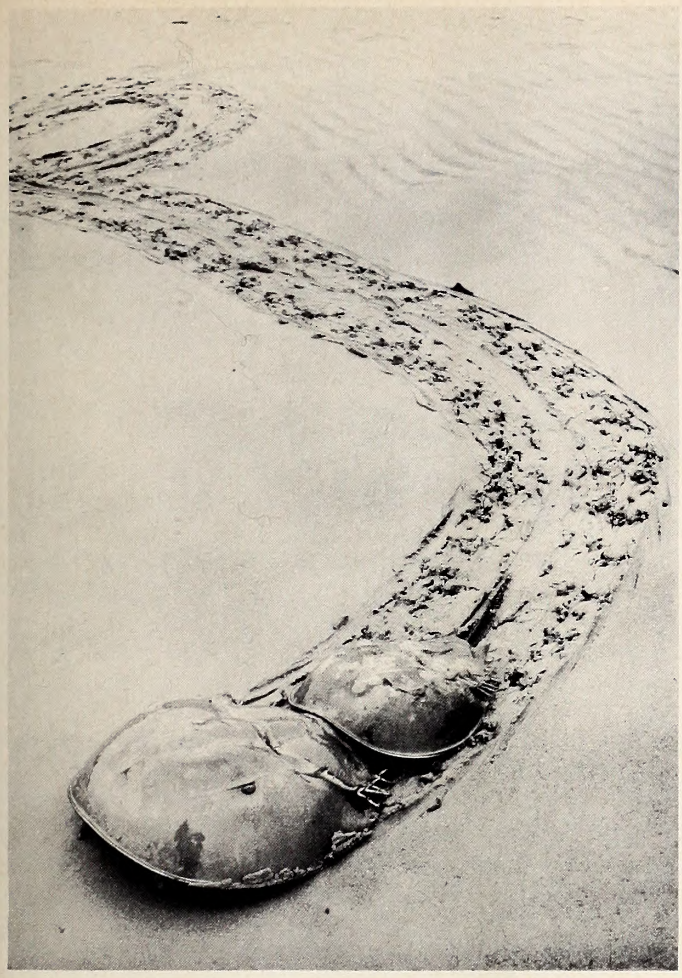


PHOTO BY LEONARD LEE RUE III

**A pair of horseshoes describes tank-like "tread" marks in sand.**

another may tag on behind. I have seen a female plowing up the beach like a hard-working locomotive, hauling her bridegroom and four hangers-on.

A horseshoe crab, single or in procession, moves along the sand in a peculiar hitching motion, rising on the first four pairs of legs, then shoving forward with the last two pairs. This produces a wide furrow, in the center of which is the drag of that eight-inch telson, or tail spike. I've found that track on a Maine shore and on a Carolina tide flat. I've also seen it scooped deep in a slab of solid rock quarried far inland. This marked a forgotten seashore where some ancient crab journeyed across a mud flat which hardened to stone millions of years ago.

The female pauses every few feet during her journey. Now her tough, leathery hood works like a bulldozer, scooping a hole in the sand. As many as a thousand pearly-green eggs the size of buckshot may tumble into the hole. The male scatters his sperm over them, and the tumbling of the waves washes the sperm over the eggs. And that's all there is. After all the anticipatory fidgeting by the male, there is no actual sexual union whatever.

The water covers the eggs with sand as the horseshoe crabs scrape on to the next nesting side. If an extra male or two has come along for the ride, so much the better. Their dragging bodies help cover the eggs more completely.

Each female may dig several holes and lay several thousand eggs—as many as 20,000 for a full-sized female. The first hole may be drowned by the sea, while the last may be beyond the highest wave. But in between, conditions will be just right at a few of the nests. Hence the horseshoe crab, gambling on the laws of chance, plays the odds for all they're worth. Hundreds of females along a mile of beach scoop thousands of holes. These contain hundreds of millions of eggs. With luck, a few million will be laid in the right spot.

Such exuberant production seems like poor planning, but it is necessary. Even while the female is laying her eggs, other creatures are reaping the harvest. On a Massachusetts beach I watched fish nearly strand themselves as they searched the shallows for the lowest nests. I've heard of a female crab which dropped her eggs in a few inches of water; half a dozen fish all overturned her as they nuzzled beneath the shell. Without a doubt, every egg she produced was gobbled up. But faced with an urge she could not deny, she continued her useless efforts.

"Eels will sometimes follow a female horseshoe crab right out of the water," a marine biologist told me. "They work way under her hood and catch the eggs as they fall. Shorebirds find the eggs in the morning, too. They come by the thousands. Mexican and Indian natives watch where the birds are feeding and then take the eggs for themselves. Sort of a summer caviar, I guess."

The female would be powerless to prevent this wholesale slaughter, but neither she nor her mate are aware of it. As soon as the eggs are deposited, they are left to their fate. Only lavish production perpetuates the species.

Now the sense of gravity is reversed. Like a carpenter's level tipped the other way, it tells the crabs to seek a downgrade. This usually leads them back to water. Sometimes, however, there is a fatal error. Caught on the back slope of a sand dune, crabs follow it to a dry gully. I've found some horseshoe crabs at Cape Hatteras National Seashore dug into the hot sand hundreds of feet from the water. There they waited in vain for the tide to return.

One summer we raised a few dozen horseshoe crab eggs at a Connecticut marine laboratory. The larvae were exquisite little jewels. Almost transparent and lacking the spikelike tail, they hardly resembled their olive-brown parents. Their segmented little bodies shimmered under the light of the microscope.

The horseshoe crab often lays its eggs at full moon, when the tide is at flood. Usually the next flood tide a month later signals the release of the larvae. Washing down to sea, they float on their backs, paddling along with their little gill plates. They grow by shedding their skins, swapping an old, rigid cuticle for a wrinkled new one which rapidly expands and "sets" to a larger size. With each molt they assume more of the adult's shape.

Other creatures will shed their skins by split-

ting them along the back, but not the horseshoe crab. One day I was walking along a beach with a small friend, who picked up the cast skin of a large specimen. It was almost perfect—legs, claws, gills, tail, spines along the back edge, all still in place. There wasn't a split to be seen anywhere. Yet this was obviously just a shell.

"How did the crab get out of here?" my young companion asked. She poked a little further and found the answer for herself. All along the curvature of the front edge was a thin line. By pressing on the sides of the shell, she could make the line gape. The crab had split its front seam and had crawled forward, pulling its soft body "out of its own mouth," as it were.

Actually, the mouth of a horseshoe crab is beneath its shell, buried between the attachments of the legs. The crab has no teeth or even jaws. It cuts its food into bits by a method akin to hunching its shoulders. Feeling around in the mud for worms and mollusks, it crushes shells and shreds food with sharp toothlike processes on the bases of its legs, which work against each other. If a "tooth" or two is broken, it really matters little. At least a stub will probably grow back with the next molt.

Digested food is carried to all parts of the body by the blood. Naturally, in one of such venerable ancestry, the blood turns an aristocratic blue when exposed to air. This fluid also carries oxygen from the gills. Floating within the blood are small cells which can creep along under their own power. If the crab is wounded, the cells move to the opening; stretching out armlike processes and interlacing almost as if they were holding hands, they form a little dam to stop the flow.

As a young crab grows, it works toward deeper water. During the day it hides in the mud and sand. At night it plows along in search of worms and mollusks. Or it may glide as fast as a human's leisurely walk by flapping its gills and balancing on the tips of its legs and tail. Sometimes a probing foot slips between the shells of a large clam. There the small crab is held until the clam decides to let go.

NOBODY is certain about the horseshoe crab's family tree. The species has been called one of nature's leftovers. Some biologists are struck by the resemblance of its living nearly half a billion years back in time. Others say it may be related to the eurypterids—monstrous scorpion-like creatures, sometimes as large as a man, which swam in Paleozoic waters a mere 350 million years ago.

One thing is sure. The crab is not a crab. Despite its heavy crablike shell—in zoology class we used a can opener to open preserved specimens—its development and anatomy are different. Beneath the hood it resembles an oceangoing spider. Thus it is often classed with the arachnids.

The hood covers the top of the horseshoe crab completely, but two large eyes lying beneath clear areas in its upper curve provide a window to the upper world. The eyes, somewhat like the compound eyes of insects, are composed of hundreds of tiny facets and give it a peculiar sidelong stare. A pair of simple middle eyes is located in front. The cast skin of a horseshoe crab which has been on my desk for fifteen years shows the outer covering of the eyes perfectly—individual facets and all.

Yet with all these eyes, the owner gropes about as if they weren't much help. Just for the fun of it, stand directly in the way of an approaching horseshoe crab. If it is not frightened by your initial movement, it may crawl and scratch when it comes to your feet, trying to climb over this strange obstacle.

Oddly, those dim eyes can perceive polarized light and even pick out ultraviolet and infrared light. What a mud-loving creature in two dozen feet of water needs with such perception, nobody can tell. One group of biologists thought such vision might help the crab find its way to the beach. So they covered the eyes with tar. But with its sure sense of gravity, the crab completed its mating journey without a hitch. Then it turned and went back into the water, leaving behind a few thousand eggs—and puzzled scientists.

Another mystery about the horseshoe crab is its strange distribution around the Earth. Our Atlantic species, *Limulus polyphemus,* has no relative on the American Pacific shore, yet there are horseshoe crabs along the eastern coast of Asia. There the group is represented by four distant cousins of our *Limulus.*

Why no horseshoe crabs in between? Nobody knows. All attempts at establishing them elsewhere have failed. Yet we know they once pushed their way up the shores of Europe. There *Archacopteryx,* forerunner of modern birds, once flapped over the Bavarian lowlands. In the same stratum that contained the feathered imprint of that crow-sized body, scientists have found the horseshoe crab faithfully reproduced in solid stone. The fossil is scarcely different from the crabs you see on the beach four thousand miles and 150 million years away.

Despite the long period each crab spends in the mud and water—perhaps twelve years—its shell is amazingly clean, probably from constant scouring as the owner pushes through the sand. Then, too, it is discarded each year until the crab is fully adult.

Occasionally, however, an individual comes ashore looking like a rubbish heap. I recall a crab that looked as if it had burrowed beneath a pile of debris above the wave line. I lifted the seaweed, expecting to free it, but the crab came up too. It was a regular walking garden—barnacles, sponges, weeds, snails, even small crabs lived in this saltwater jungle. The underside of the crab, too, had its share of flatworms, which apparently hitched a ride at no discomfort to their host. To all appearances, the strange relationship worked to the benefits of all. The crab was camouflaged, and a hundred hitchhiking organisms had a constant change of scenery.

But for all its steady habits, this ancient mariner is endangered now as never before in its career.

Ironically, the creature that threatens it is one of Earth's newest arrivals—that land-dwelling upstart, man, who geologically is still wet behind the ears.

Not only do we pollute the estuaries and bays which serve as choice breeding sites, but in the past few years our activities have taken on a sinister new turn. We spew tons of raw waste into the waters of our Atlantic Coast and poison clams and other shellfish out of existence, but we choose not to recognize the true villain. Instead, we look for a scapegoat—the horseshoe crab.

IT is widely known, Dr. Shuster points out, that horseshoe crabs can wreak havoc among solft-shell clams buried in a mud flat. Seizing upon this observation, shellfish interests have decided that the crab is responsible for their woes. So in many places there's actually a local bounty on it.

"It doesn't help a bit to remind clam diggers that clams and horseshoe crabs got along together for millions of years before we came along to save the clam," a marine biologist at Boston said when I asked him about a Massachusetts bounty. "With miles and miles of good coastline now loaded with filth, we look at the remaining territory where clams and crabs have to crowd together, and arbitrarily say the crab must go."

Intrigued, I began to look into the situation. I wrote to the Division of Marine Fisheries of the Massachusetts Department of Natural Resources asking about the biological basis for the bounty on the horseshoe crab. They sent me a pamphlet which stated that the crab was an "insatiable . . . voracious enemy" of the clam. Looking at the publication further, I discovered an interesting fact. It was based on a report published in 1916.

Again I wrote to the department, asking what more-recent information they had as a basis for the bounty now that fifty years had passed. Their answer: No really recent material was available, but they had begun to discontinue bounties anyway. It seems that the crab moves around a lot, so a bounty hunt in one area one summer might affect the clam abundance the next year in a completely different area as far as twenty miles away.

However, the chain of information hasn't yet reached all Massachusetts towns. Thus in Duxbury, for instance, the state still supports the town bounty system. There, at dockside, the shellfish constable pays four cents for every living horseshoe crab delivered into his hands within a certain period. These living fossils, so perfectly equipped to cope with all the hazards that a quarter a billion years could toss at them, are sacrificed needlessly and hauled off to the town dump.

So dire is the supposed threat posed by the horseshoe crab that children are encouraged or permitted to crush them, stone them, or spear them when found too far away to be worth the four cents, or when smashing them is considered more rewarding than the bounty.

How well does the bounty system pay off? The *Quincy Patriot Ledger* of June 28, 1966, showed pictures of Duxbury children throwing live horseshoe crabs into a basket. The *Duxbury Clipper* added that 8,000 crabs had had their comeuppance at four cents each. There was one disturbing note: "This," reported the *Patriot Ledger,* "was the slowest year yet." It seems that just five years ago when the bounty began, at least twice that many crabs were captured.

On a trip to the Duxbury dump I found hundreds of crabs, many on their backs and waving their legs feebly in the sun. A walk along the shore revealed more crushed crabs, sometimes still in tandem. Behind them, in the sand, still stretched the old, old track.

"In some places clam beds are fenced to protect them from horseshoe crabs, green crabs and other enemies," my marine biologist told me. "There's no doubt that they can do a good job in a clam bed. And, of course, horseshoe crabs have been piled up for fertilizer all up and down the Atlantic Coast every summer for years, while fishermen have cut them up for eel bait. So the war on them really isn't new. But when I see a mother and father at the beach sending Johnny for a stick so they can kill a horseshoe crab, I wonder what this is teaching about conservation."

In the meantime, the venerable patriarch continues its ancient journey and lays down its ancient trail. Possibly as a result of the bounty and certainly because of man's destruction of the coastline, that trail is now harder to find on the shore than in the days of my Connecticut boyhood.

But even if its dim little brain could perceive the change in its fortunes, the horseshoe crab probably wouldn't care. After all, it has seen coastlines disappear before. And maybe continents, too. ◆

**The moving gear of the horseshoe. Most of the vital parts are well protected by the chitinous shell shown inverted here.**

DIAMON SMITHERS, FROM NATIONAL AUDUBON SOCIETY

# Ask An Indian

by B. Gene Barrett ILLUSTRATED BY BILL BALLARD

IT had been a bad spring for bass. In fact, the worst spring that Claude Hucklebee could ever remember. In March, the weather had turned too warm and the bass had started to bed early. Then all of a sudden the temperature dropped and stayed down below normal until early June. Claude had fished the river near Gumbo hard and long and the only bass to fall for Hucklebee plugs were the yearling critters which Claude released carefully after uttering unkind words under his breath.

Claude sat beneath an old chinaberry tree beside the post office and thought about trying the bass one more time and wondering if the tobacco was going to make it or not in the sweltering heat that had been plaguing Gumbo for the past two weeks. It was while Claude sat planning and watching his favorite buzzard flying lazy circles around the town limits that Arthur Berryweather pulled up to Zeb Davis' general store in that pink Cadillac which he had purchased after successfully running moonshine for two years.

Claude had never taken a cotton to Arthur because he was always doing something illegal and getting away with it. The only time Claude had ever tried to get by the law he was stopped cold. It seems that Claude, in all innocence, had forgotten that he had 14 bass on the stringer instead of eight and Bill Rhodes, the local warden, had to give him a lesson in proper accounting. Since then, Claude had gone straight, but that's another story; let's get back to Arthur Berryweather.

Even as Arthur got out of the air-conditioned comfort of his Cadillac, Claude knew that something was up. Arthur had a smile on his face that reminded Hucklebee of the time Arthur had won all his money in a blackjack game. Arthur ambled around to the trunk of the car and nonchalantly raised the lid and withdrew a bright aluminum ice chest. That was another thing Claude didn't like about Arthur, always buying those fancy gadgets. Without so much as a hello, Arthur Berryweather opened the ice chest and began to lay fish out on the shady porch of the general store. Claude stood up, brushed the dust off his overalls, and ambled over to the store just as the crowd started to gather. Claude just couldn't believe that Arthur had caught some fish, when he, himself, hadn't taken a bass in three weeks.

One look at the porch was enough to make Hucklebee's bass-like nose do a double-take. There in the cool shade lay the most beautiful fish Claude had ever seen, and Claude Hucklebee had seen plenty of fish.

"Where'd you get 'em and what 'er they," Claude casually asked as Arthur continued to place fish on the porch.

"Ain't you never seen a trout?" replied Arthur as he placed a three-pound rainbow on the growing pile.

"Well, 'er yes, I reckon so. Uncle Thad and I went down to the coast a couple of years ago and caught some trout, but they shore didn't look like them on the porch there."

"Claude Hucklebee, you ain't never seen a trout in your life. These fish came from the mountains!"

Not wanting to seem uneducated, Claude stood around and listened while Arthur bragged about trout fishing in the mountains. It finally came out that Arthur had paid some Indian tribe a dollar to fish in one of their rivers, and according to Arthur those trout could out-fight a bass two to one. The last straw came when that smart Berryweather said he had used canned corn for bait. "Can't no fish be smart that'll bite corn," thought Claude as he slouched off down the road to look at his tobacco. The very idea of a trout out-fighting a bass was just too much for Claude. He wondered seriously about Arthur Berryweather's sanity, shook his

head and forgot the matter.

I said that Claude Hucklebee forgot the matter, but Claude has a bad thing about dreams. That night Claude saw a ten-pound trout thrashing around with a Hucklebee bass plug hung in the side of his mouth. Even worse, those dreams got so bad that Claude lost his appetite and refused to go bass fishing! After these developments, Claude started working his tobacco harder than anyone in Gumbo. Even though all the local fishermen agreed as to the quality of Claude's tobacco crop, there were some serious doubts raised as to the quality of Claude's health.

Finally a visit to Doc Wood was arranged and Claude reluctantly agreed to go through with it.

After hearing Claude's symptoms, Doc Wood, being a natural born fisherman himself, immediately understood and sadly shook his head.

"Am I gonna die, Doc?" asked Claude mournfully.

"Nope, worse than that, Claude," the doctor said as he placed a comforting hand on Claude's sagging shoulder. "You're going to have to go trout fishing."

Well, after some persuading from the doc and arrangements with Uncle Thad to take care of the farm, a dejected Claude Hucklebee loaded his cypress boat, fishing rods, and favorite bass plugs into his old pickup and drove down the main street of Gumbo and headed 400 miles across the state to go trout fishing.

Gumbo lay quiet and peaceful that August morning as Claude in his dilapidated truck and cypress boat rattled past the general store. The only sign of life to be seen was an early rising jay which screamed and fled for his life before the unusual caravan. Since the red ball of fire reflecting in Claude's rear view mirrow indicated a scorching day for travel, the old bass fisherman paused briefly to fill a fruit jar with the cool sweet water of Gumbo's deepest well.

Throughout the heat of the day, Claude wiped sweat drops from his wrinkled, sunburned face with a big red bandanna, sipped from the fruit jar and piloted a course for the cool North Carolina mountains. Only once during the day did Claude pause. He stopped for gas somewhere in the Piedmont at a country store, consumed a couple of cans of his favorite Maine sardines, a bottle of soda pop, and drew strange looks as he announced his mission.

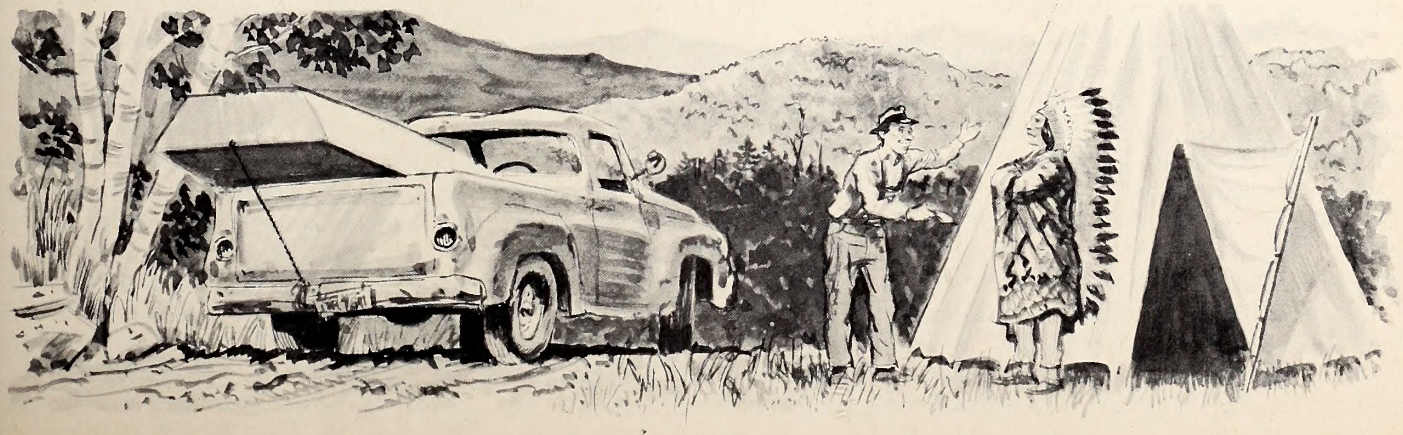
**Doc Wood gave Claude a thorough going-over, but even before he was through, Doc knew what was wrong.**

Gradually the old truck announced by its moaning and groaning that Hucklebee had indeed reached the mountains. Claude began to see names on road signs that he couldn't pronounce and along about dusk a dust covered, bone-tired Hucklebee entered the Indian reservation.

Claude had never seen a real Indian except the ones that occasionally passed before his eyes on the television set at Zeb's store, but being the natural outdoorsman he was, Claude had no trouble finding an Indian. There right ahead of his truck lay a most respectable tent with a fully garbed Indian standing in front, just like on television.

Without hesitation, Claude pulled over to the side of the road, leaped from the creaking old truck,

**Claude would've done 'most anything to find out where the big trout were — even ask an Indian!**



and after reaching into the bib of his grimy overalls, presented the dignified chieftain with a crumpled dollar bill.

"I came to catch some trout," announced Hucklebee to the amazed Indian. "Where's the river that's got trout?"

"Well, that depends," replied the chief. "What kind of trout do you want to catch?"

"Big trout," came the unhesitating reply.

"Why don't you try fishing in Leaping Lizzard River about two miles down the road?" posed the Indian after glancing over Hucklebee's straw hat to the cypress boat and battered truck.

Claude thanked the Indian profusely for the guarded information he had gleaned, returned to his truck, drove down the road a ways and camped for the night.

Morning light disclosed a refreshed Claude Hucklebee brandishing a heavy-duty bass rod and a favorite bass plug sneaking through the laurel thickets on his way to the waters of the Leaping Lizzard River. First glance at the crystal clear waters told Hucklebee that his boat would be of little use, even if there had been a place where it could be launched. The river's swift waters rushed down the mountain over boulders as big as tobacco barns. Nothing was left for Claude to do except fish from the bank.

Throughout the day, Claude cast his most productive lures around the boulders and snags in hopes of catching a big trout and throughout the day Hucklebee failed. Several times Claude saw flashes of fish but he identified the activity to be minnows fleeing from the natural action of his six-inch plugs.

As the day drew to a close, Claude reeled in his remaining bass plug; all the others had been lost in the Leaping Lizzard River. The bass-master had not given up; he was merely making a tactical retreat in order to try new methods on the monster trout.

Another visit to the Indian Chief and two dollars later, Claude camped beneath the stars, and with the Leaping Lizzard River taunting him from somewhere in the darkness the old bass-master fell asleep and dreamed once again the dreams which had brought him to this strange place.

The Indian had told Hucklebee of a lake built by the white man to provide electricity; it held some of the largest trout in the country and Claude figured that for two dollars the Indian could not have possibly given him false information.

Early the following morning Claude backed his faithful truck down the Wildlife Access Area ramp and unloaded the old cypress boat into the most beautiful blue-water lake he had ever seen. A feeling of contentment flooded through Hucklebee as he paddled across the lake and hummed a tune softly to himself. Surely he could not fail to catch trout in a lake like this!

After arriving at a point on the lake where the Indian had indicated was the best place to fish, Claude rigged his bass rod with a sinker and single hook and, after making sure he was the only fisherman in the vicinity, Hucklebee cut the top out of a can of whole kernel corn with his pocket knife and placed several of the tempting morsels on his hook. A perfect cast sent the rig to the bottom of the lake and Claude settled back to wait, thinking this was almost like catfishing back home.

Claude didn't have long to wait, however. The line had hardly settled when the rod came alive with a savage strike. Claude struck back and gasped as the largest fish he had ever seen vaulted from the water and raced for the middle of the lake to the tune of a screaming casting reel and assorted war whoops from Claude Hucklebee. It soon became apparent that the fish was no match for the straw-hatted man in the cypress boat and after repeated valiant efforts on the part of the fish, the glistening beauty lay exhausted beside the boat where a trembling hand grasped his lower lip and hoisted the lunker aboard.

Hucklebee just sat for awhile gazing at the beauty of his prize, then paddled the little craft slowly back to the access area. After wrapping the prize fish carefully in damp moss and depositing him in a burlap bag brought along for this exact purpose, Claude headed back to Gumbo.

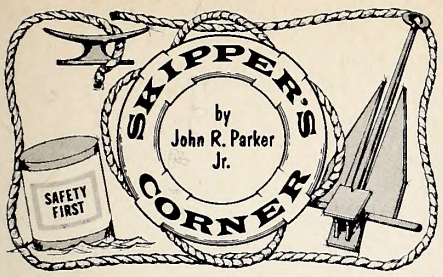
The sweltering heat had driven most of the local fishermen into the shade of the old white oak beside Zeb's store where a hotly contested game of checkers was in progress as Claude Hucklebee sauntered up with his burlap bag cradled carefully under one arm.

Gently, the treasure was laid out on the porch of Zeb's store within its nest of rich green moss. Silence prevailed for a full minute as the farmers forgot the checker game and stared in amazement at the trophy fish. Arthur Berryweather managed a sickly grin that indicated to Hucklebee that the bass-master was again the undisputed fishing champion of Gumbo.

"Enter 'im in the fishing contest, Zeb, and then send him off to Raleigh to that feller that mounts fish," Hucklebee casually said as he twitched his bass-like nose, hitched up his overalls, and sauntered off down the road without pausing to answer the many questions that were being hurled at him by the local fishermen.

As Claude crossed the bridge at the edge of Gumbo he paused to toss a rock at a lazy turtle sleeping on a cypress root and silently smiled to himself. Yep, that look on Berryweather's face was worth a small fortune. Claude started down the dusty road. "Now who'd ever believe," Claude thought to himself, "that a 13-pound fish would be living in one of them mountain lakes—and to think I got 'im on canned corn!"

If you see a dust-covered, battered old farm truck loaded with a cypress boat headed toward the mountains this summer, please give it a wide berth. No. Claude Hucklebee won't be going trout fishing; he's merely trying for another of those trophy bass in a certain mountain lake. I can't devulge the exact location of the lake, but if you are interested, there is a certain Indian tribe up in the mountains . . . ! ⬍




IT would seem that the world of boating is one big mass of rules and safety tips. How can anyone have fun amidst so many rules? Actually, many of the rules of which I am thinking do not have the backing of law. Many of these are rules of experience, research and common sense but most boaters respect them as if they were law. No, boating is not an overregulated sport; not yet. And it does not have to be if we all apply the rules of good seamanship that can keep the boating scene safe.

### Fire Safety Precautions

One such set of rules is supplied by the National Fire Protection Association. The international fire safety organization offers these vital pointers:

- During fueling operations, enforce a strict "No Smoking" rule—be sure all open flames have been extinguished—keep fuel away from ignition sources — immediately wipe up any fuel spilled on the engine and elsewhere.
- Portable fuel tanks used with motors should be removed from the boat for filling. If extra fuel is carried aboard, use only approved safety containers or portable tanks. Never store reserve fuel supplies in the engine or living compartments.
- Before starting an inboard motor, ventilate the engine compartment and make sure there is no smell indicating presence of gasoline vapors.
- Be a good "boat keeper." Keep bilge clean of oil and gasoline. Don't allow rags—especially oily ones—or papers to accumulate. Store matches well out of the reach of children.
- Stoves should be only those aproved for marine use. Never use a portable LP-Gas-fired stove or one fueled by gasoline.
- Don't use portable heaters of any type on the boat.
- For fire protection purposes, every motorboat should have at least one approved fire extinguisher, one of the type designed for use on Class "B"—flammable liquid—fires. The larger the craft, the more extinguishers it should have. Keep extinguishers near the equipment or just outside the compartments they are to protect. Be sure they are kept well charged and in first-rate working condition at all times.

As the "Fire Protection Standard for Motor Craft" (NFPA Standard No. 302) points out, "There are few other uses of petroleum fuels by the public in which the fire and explosion hazards parallel those possible in motor craft." Therefore it is essential that design, materials, construction and installation of all parts of the boat's fuel system are of the highest quality, as specified in the standards. (Copies of this valuable pamphlet are available at 75 cents each from NFPA, 60 Batterymarch Street, Boston, Massachusetts 02110.)

### Marine Theft

A year or so back, this column carried a few comments on the stolen boat business in North Carolina. At that time, it was apparently not a large problem—unless, of course, you were one of the unfortunate few who were victimized. At any rate, some interesting suggestions from the Maryland State Marine Police came across my desk and I thought they might be of use. Or maybe it's too late. Have you looked lately? Be careful—thieves depend on indifference and carelessness by the boating public to make their work easy.

- Use steel cable or chain and locks for mooring.
- Install adequate locks on doors, windows, ports and hatches
- Install a hidden switch on electrical system
- Install a fuel line cut-off valve
- Stow out of sight and lock up portable equipment when boat is unattended
- Mark or stencil boat name or owner's name on radios, electronic gear, life preservers and other equipment.
- Keep a complete record at home of make, year and serial numbers of boat, outboard motor, radios, compass and electronic gear
- Report immediately the discovery of any loss

### Use Boat Logbook

A record of your boating adventures serves several purposes. An inexpensive logbook will provide you with a record of fuel usage, places you have visited, time required to travel a given course, a record of your guests aboard and much more useful information. It is a real aid when you are planning future outings. It also serves as an aid to reliving pleasant moments during the off-season.

### Do's and Don'ts of Outboarding

*Don't* tie up to buoys or channel markers.

*Don't* appropriate pier or dock by tying up and leaving your boat, thereby depriving others of the only space available.

*Don't* anchor so close to other boats, fouling can occur.

*Don't* anchor in channels or fairways, thus interfering with traffic through channel.

*Don't* desecrate the waterways by dumping refuse overboard to collect in harbors or on the shoreline.

*Do* get familiar with your local buoyage system. Charts governing your own waters should be obtained and studied.

*Do* exercise courtesy when passing other boats, especially small craft with anchored fishermen.

*Do* avoid staring at the occupants of other boats—it's an invasion of privacy!

*Do* render help to another boat in trouble. It is unseamanlike to ignore a distress call.

*Do* be considerate of others whenever and wherever you boat. ⬍

PHOTO BY JOHN G. HEMMER

**Albert Tufts, Pinehurst conservationist, demonstrates his newest invention, a mechanical fish feeder. When the water level is restored, food drops in water.**

# Chow Time for Fish

**by Garrett Sutherland**

FISH in the Sandhills lakes surrounding Pinehurst, N. C. were going hungry, according to Albert S. Tufts, North Carolina conservationist and ardent fly fisherman.

"The natural fertility of the ponds around Pinehurst was insufficient for fish to grow," said Tufts, "Obviously, we had to do something about it!"

"Somethng" took the form of a strange new invention—strange, that is, for the then-president of one of America's leading golf resorts!

Feed used in trout hatcheries proved equally effective for North Carolina bluegills in their native ponds.

"At first we tried feeding them trout chow twice a day—by hand," he said. "About 6 pounds per acre per week, but that got to be too much like work!"

Unable to find what he wanted on the market, Tufts designed a mechanical fish feeder. He started with what he had at hand. Using scrap metal, he built a hopper for the feed, placing it above a double-compartment cylindrical drum with two slot openings. This he made by "customizing" and old-style coffee can! He then mounted the drum on a horizontal axis. As each slot in the drum draws opposite the hopper, the drum compartment fills with feed. The drum then rotates, each slot reaches bottom, and the trout chow is dumped directly into the water.

The slots are so positioned that feeding occurs every nine hours, with each "meal" lasting about three hours.

The bluegills eat the trout chow—and become chow for the bass, and provide some angling themselves.

The drum revolves on the same principle as a clock. A weighted cord is wound on a pulley mounted on the same axle as the drum. In order to slow it down to the proper speed of one revolution per day, a clock mechanism is attached to the axle. The clock mechanism, wrapped in plastic to keep out rain and dust, is mounted on an aluminum housing so that a small sprocket checks the main axle with a chain leading to a large sprocket mounted on the axle. The sprocket on the clock mechanism is attached to the wind-up key on the alarm clock—thus eliminating the clock spring, and causing the weight on the pulley to operate the clock mechanism.

The amount of feed in the drum has nothing to do with its revolution. The pulley is so small that eight revolutions are required before the weight hits bottom. Thus you need refill the hopper and re-wind the pulley only once a week.

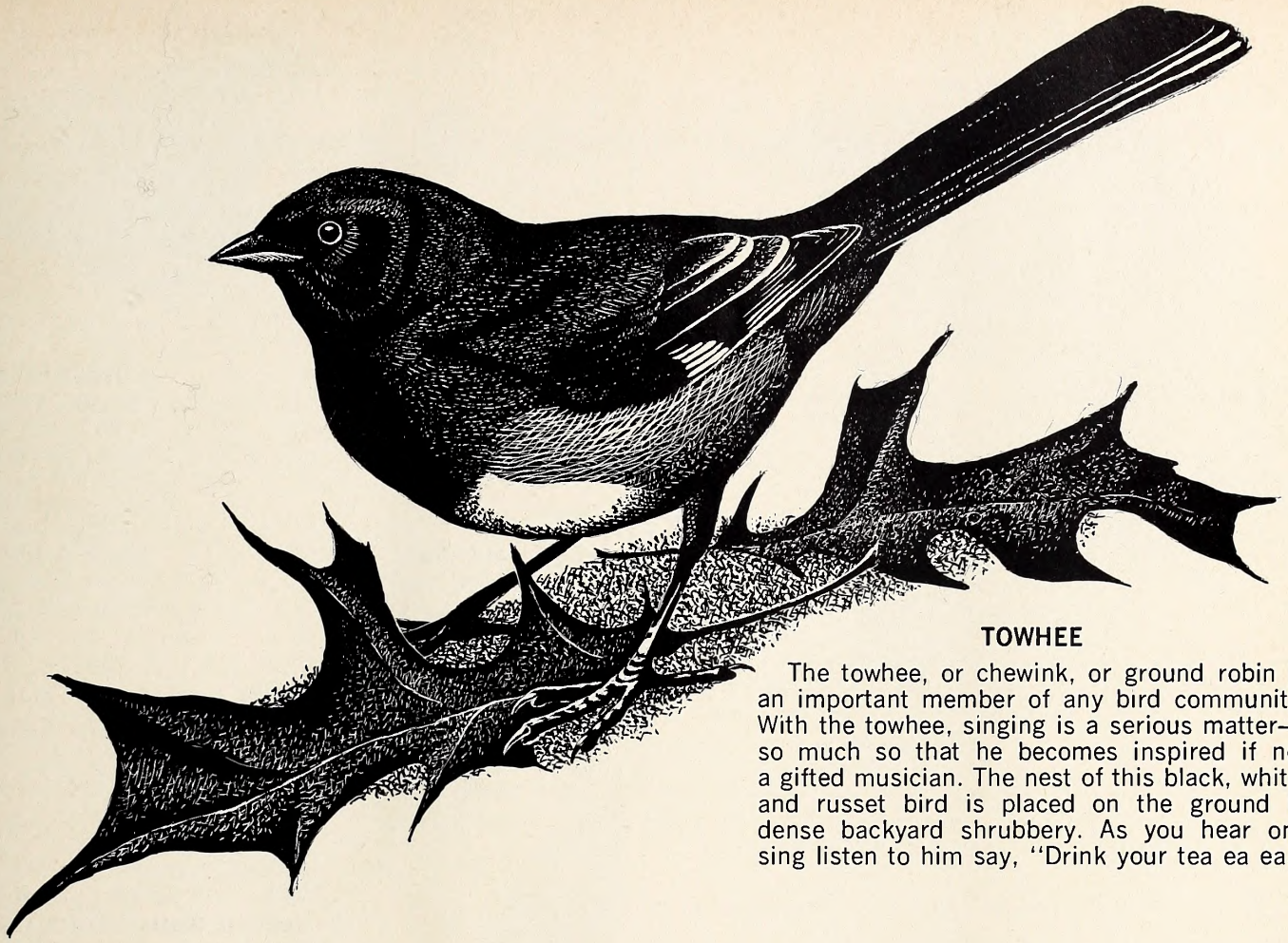
Over the hopper, Tufts built a removable square hood—painted sheet iron—to keep the feed dry.

The feeders are not difficult to build. You'll need scrap metal for the hopper, sheet iron for the hood, masonite for the sprockets, an alarm clock, and plastic to keep it dry. Any two-inch pike will do for the shaft, which should be mounted in about three feet of water. Tufts made his drum by dividing an old-style coffee can into two compartments and cutting a slot opening in each side—you could use any large cylindrical can. To prevent leakage, he used the bristles of a paint brush, attached between hopper and drum. For the weight, any hunk of metal will do. Tufts used old window weights.

"Ideally, platinum would be best, as it has the highest specific gravity," he said, "But lead is the only practical solution, and iron is more easily available."

You'll need light ladder chain to connect the sprockets, a pulley, and nylon rope for the cord. If the feeder is mounted in three feet of water, and each revolution is roughly six inches, you should have about 42 inches clear from the bottom of the weight to the bottom of the pond.

"Building the feeder was fun," Tufts said. "The only difficulty is figuring out the exact ratio between the two sprockets and the clock—that took some doing!" ▲▼



**TOWHEE**

The towhee, or chewink, or ground robin is an important member of any bird community. With the towhee, singing is a serious matter—so much so that he becomes inspired if not a gifted musician. The nest of this black, white, and russet bird is placed on the ground in dense backyard shrubbery. As you hear one sing listen to him say, "Drink your tea ea ea."

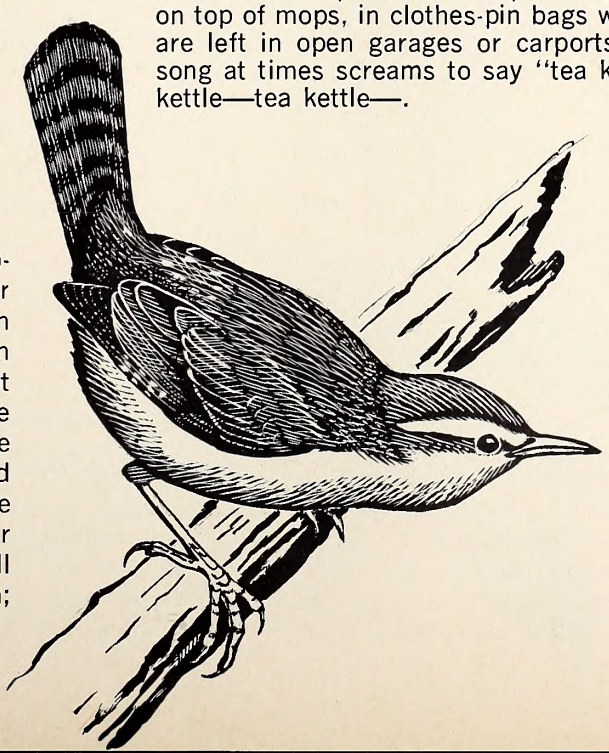
# *Summer Birds* in Your Back Yard

**Text by Bill Hamnett, Illustrations by John Taylor**

SEVERAL years ago, the Wildlife Commission published a little booklet entitled "Winter Birds in Your Backyard," and by now, thousands of copies have been distributed to every corner of North Carolina and then some. So why not "Summer Birds"? Here they are; not every bird that calls North Carolina home during the summer months, but a good representation of the more popular song birds close to home. We wish they could have been in color, but we hope that they will stimulate your interest further in our feathered friends, and our natural resources in general. These same birds will appear in a new booklet by this same name very soon; write for your copy. Editor

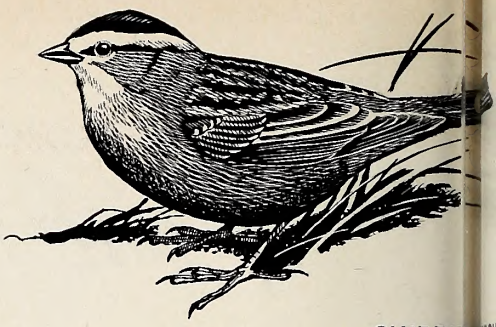
**CAROLINA WREN**

This energetic wren often tries to be in two places at the same time. My, how it chatters and fusses when disturbed! The cinnamon-brown birds nest in many places where one would least expect; in coat pockets, old hats, on top of mops, in clothes-pin bags when these are left in open garages or carports. Its loud song at times screams to say "tea kettle—tea kettle—tea kettle—.



## CATBIRD

The catbird is one of the most familiar feathered residents of the dense shrubbery near lawns and gardens. The sexes are alike in color, both being slaty gray, with a black cap and tail, and brick red underneath the base of the tail. Though it gives a whining, nasal cat "meow," its real song, from a musical standpoint is excelled by that of few of our birds. Being one of the three mimickers, the catbird sings each phrase once, the brown thrasher repeats each phrase, and mockingbird sings a phrase three or more times.



## CHIPPI

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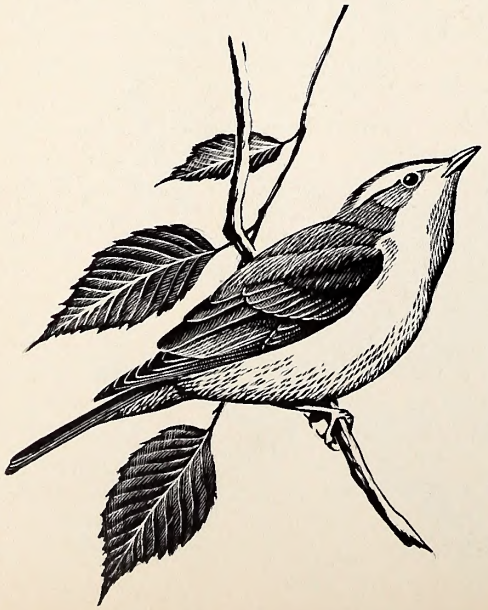
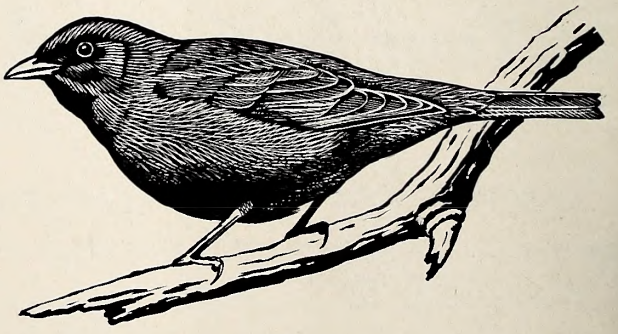
## RED-EYED VIREO

There are few places in the summer we may not hear the cheerful song of this bird. As we listen it may sound like "you see it—you know it—do you hear me?—do you believe me?" About the size of a sparrow it is olive-green above, white below, and a black-bordered white stripe over the eye. The red eye is a gleaner. Its habit of carefully exploring the under surface of leaves and various nooks and corners in the bark and foliage makes it a little different than the warblers which tend to flit about.





## SUMMER TANAGER

The summer redbird is the summer tanager. This rose-colored bird with its pronounced **chip-churr** likes areas of pine trees, and will select a backyard pine for its nesting site. The female is colored differently than the male. She is clad in dull olive-green which makes her less conspicuous than her mate. Their cousin, the scarlet tanager, with fire-red body and jet black wings and tail, is the most brightly plumaged of our birds.

# *Summer Birds*
# in Your Back Yard

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### CHIMNEY SWIFT

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u should see the aerial maneuvers
Sometimes this bird is described
a "black cigar with wings." The
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est it clings to the inside of hollow
and chimneys and gains much
its stiff tail feathers. The nest is
basket of small twigs fastened
a glutinous saliva. By mid-Octo-
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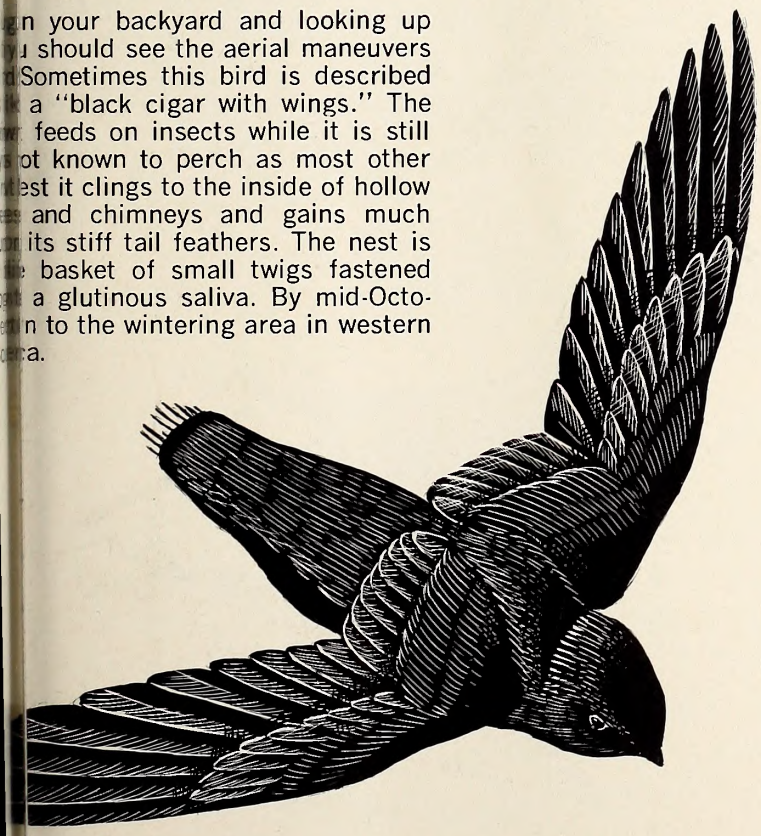
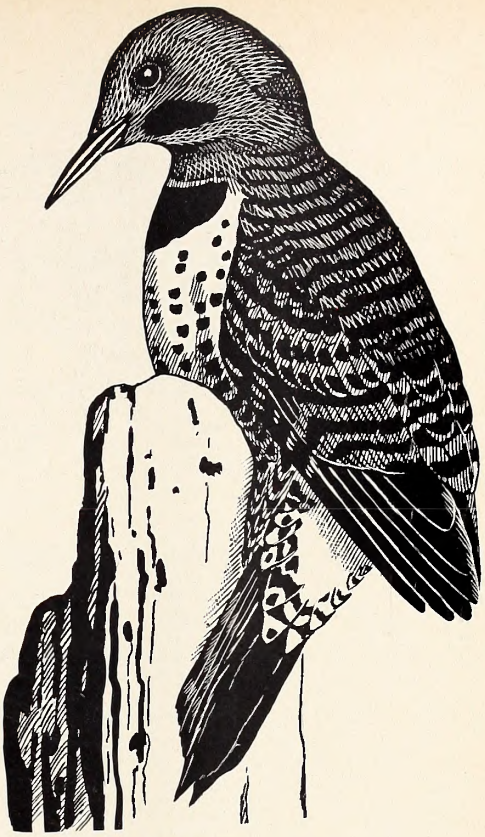


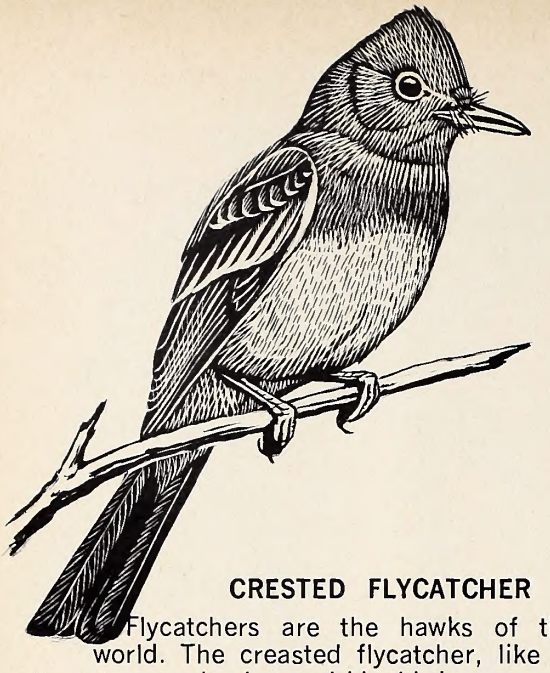


### FLICKER

One of our most interesting woodpeckers is the flicker. He is less of a carpenter than are others of his family, and generally selects decayed logs and stumps as his hunting ground. More often than not he will be seen feeding on ant hills in your backyard. At times when two flickers are together much boring, scraping and conversation goes on. The white rump patch and red crescent on back of the head of the flicker are distinctive, and the male has a black "moustache."

### WOOD THRUSH

In the evening time, the flutelike note of the song of the wood thrush is a tranquilizer for man's daily cares. The brown colored back, the white underparts with the spotted breast and its hopping about will help you know this bird. The nest, usually in a small tree, will have paper and string entwined in its construction.

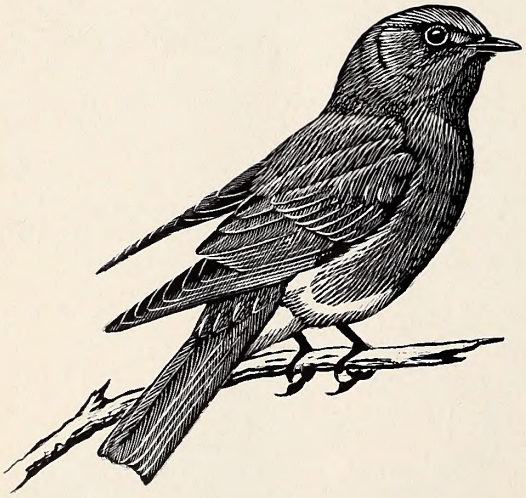


## CRESTED FLYCATCHER

Flycatchers are the hawks of the insect world. The creasted flycatcher, like the wood pewee, phoebe, and kingbird are constantly on the watch for their prey which is captured on the wing. As a rule, after darting for an insect they will return to the same perch. This tawny colored, robin-size bird will be up in our back-yard trees. Though it nests in a hollow, tree cavity, or a prepared nesting box its nesting is unique. If at all possible, a discarded snake skin will be woven into the nest structure. Recently they have used cellophane paper for a substitute. The song can best be described as simply a noise.

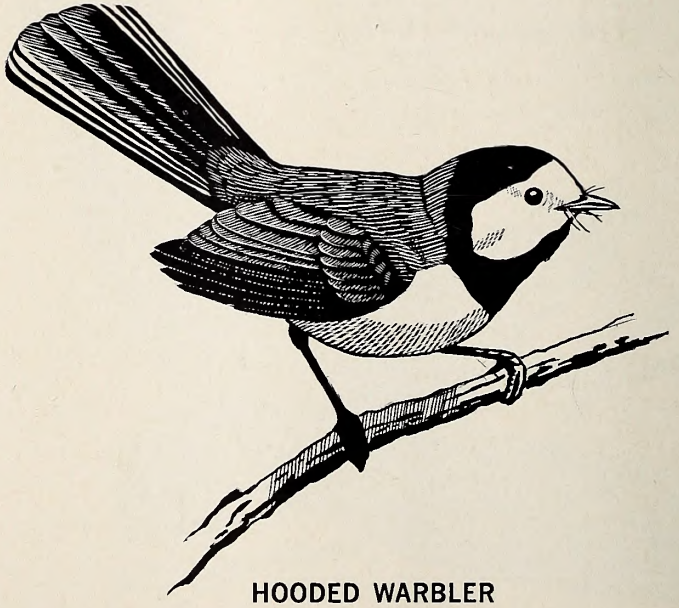
## RUBY-THROATED HUMMINGBIRD

Coming to our deep throated flowers will be the tiny hummingbird. The ruby throat, the hummingbird to be seen east of the Mississippi River, is our smallest bird. It feeds on insects as well as on the juices of flowers and the young are fed by regurgitation. The nest of the ruby-throated hummingbird excites admiration. It is about the size of a walnut shell and you can put a drink bottle cap right on top of it.



## BLUEBIRD

The blue of the sky on its back, the brown of earth on its breast, and the plaintive song of gentle greeting best describes only one bird, the bluebird. The bluebird is the first of our smaller birds to begin housekeeping, and early in the year we may see them checking over our bird boxes or a hollow tree, and the bluish white eggs will probably be laid before the middle of April. This bird needs much protection and more nesting houses.



## HOODED WARBLER

Because we do not see warblers unless we look for them, they are strangers to many of us. Only a few of these "butterflies of the bird world" remain around backyards for any period of time. Those we are apt to see more frequently among the trees and shrubbery are: the black and white warbler; the myrtle warbler, which has a yellow rump patch; the yellow-throat wearing his "lone ranger mask"; the yellow breasted chat which sings on moonlit nights as in the day time; and the dull olive-green colored pine warbler.

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### License Time Again

If you have been using a combination hunting-fishing license this summer it expired on July 31. New licenses have been distributed to license dealers throughout the state, and while you are getting yours you can pick up a copy of the nonmigratory game hunting and trapping regulations. State fishing licenses are valid until next January 31.

### Dove, Rail Seasons Set

The first segment of another split dove season opens at 12:00 noon on Labor Day, September 2, and will last through October 5. Shooting hours as usual will be from noon to sunset, and the bag limits are 12 daily, 24 in possession after the first day's shooting.

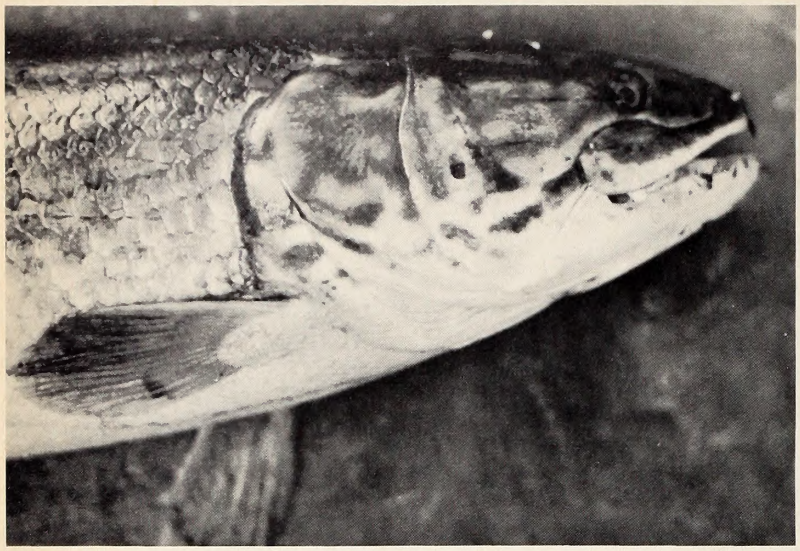
Also scheduled to open September 2 is the rail season. Daily bag of rails, or marsh hens, as they are locally known, is 15, with 30 allowed in possession after the first day's shooting. Shooting hours are one-half hour before sunrise to sunset.

### Boating Access Book Available

A 104 page illustrated book, North Carolina Wildlife Resources Commission Boating Access Areas is available from the Wildlife Commission at a cost of 75 cents per copy. The book includes county maps which locate all Commission-managed access areas, charts which describe the game and fish resources of each area and other information helpful to sportsmen and boaters. To receive this book, write to "Boating Book", Box 2919, Raleigh, North Carolina 27602, and enclose 75 cents.

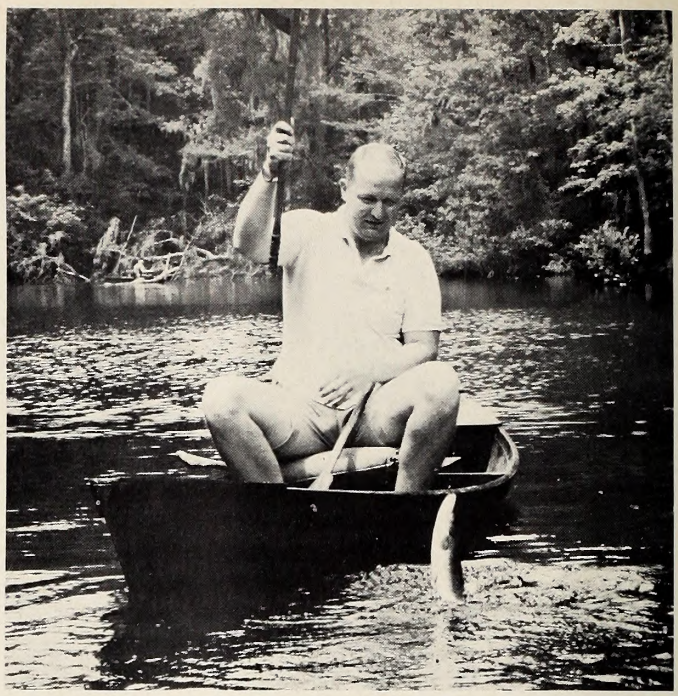
### Boating Safety Teams Hard at Work

Each of the Wildlife Resources Commission's nine districts has a team of wildlife protectors who have been spending the summer putting on boating and water safety demonstrations, and setting up courtesy boating equipment inspection check points. Work of these teams is financed by part of the tax boat owners pay on fuel used in their motor boats.



# The Tackle Buster

by Frank Mooney



**The bowfin has a mean look about him. He gives up grudgingly, and holds to life to the end. This three-pounder being boated by the author, is about whipped. Don't land them until they're exhausted.**

THE clever bowfin is classified as a rough fish, and that one word describes him: rough, and rougher yet on your tackle. When it comes to brute strength and determination, this bayou brawler will test your skill and equipment before you get him in the boat. The bowfin is known by many names: blackfish, mudfish, dogfish, grindle, lake lawyer, cypress trout, and prairie bass. In southeastern North Carolina, blackfish is the most common name; however, in South Carolina where I had my introduction to this great sport fish, mudfish was the name.

I was stationed at Shaw Air Force Base at the time which is located between Sumter and Columbia, South Carolina. Ned Eddy lived at Lake City and we worked together as ground radio operators. He invited me to accompany him to his home where we would try the fishing. I kept some type of fishing tackle in my car all the time for such occasions but this time my flyrod was all that I had to subdue the mudfish. Ned told me that the only bait that the critter would bite was earthworms. When we reached the slough and found a small leaky skiff, the smooth surface of the water erupted occasionally as a bowfin rolled to gulp air.

At that time I had never seen a bowfin, and did not know that these fish roll on the surface frequently to gulp air when the water is tepid. Bowfin can live in water with a low oxygen content and this enables them to be more tolerant of the sluggish sloughs in the coastal plains of North Carolina. This is one way of telling where there is a large population of bowfin, and the angler can see or get some idea by the splash how large the fish are when they roll.

Ned told me that I would have to fish near the bottom to catch many fish. After casting the baited hook into the water, I had to wait only a few seconds before I was wrestling with a mudfish. That fish tried every way in the book to throw the hook except jump; finally I managed to haul the thrashing critter over the gunwale. My light flyrod and I had a workout like none that I had encountered before.

When I left the swamp that evening with a sack full of fish, I had a high respect for this backwater bruiser. Now since I once again live where the blackfish swim the swamps, I gladly do battle with this worthy adversary at every opportunity. The only time fish bite well in swampy country is during dry weather or when the water has receded to the main runs and the flat swamp that produces so much food for fish has dried to an occasional mud hole. Then the fish are congregated in smaller areas and food is more of a problem for these active fish.

HOUSEWORK and other chores are badly neglected during this fishing blitz as fishermen *enmasse* migrate to the water's edge and play havoc with the fish population. I can see why North Carolina is the number one state for snake bites. Some anglers throw caution to the wind when traveling back and forth through the mucky swamp in search of good fishing holes.

This fishing fever is contagious for young and old alike. It's not uncommon to see mothers with infants in strollers pushed against a bridge railing as mother leans over to watch her float with one eye, and baby with the other.

The shad run was almost over and the dry weather had shrunk the wetlands to the main runs. People were fast converging along the White Marsh and I knew the blackfish would be ready at a place called Lee's Lake. When the water is low, it's almost impossible to reach the lake in a two-man boat. I have a one-man boat suited for these hard-to-reach spots. After doing some research on the rowdy blackfish's habits and eating traits, I decided to try this tackle buster again. The summer before I had caught several bowfin on artificial lures while casting for chain pickerel and panfish, and had some real struggles.

One day in May I made my debut on Lee's Lake in quest of blackfish. I was armed with an open-face reel, lures, one strong 14-foot cane pole with 20 pound test line and a box of shrimp. With snags so frequent and the blackfish's brute strength, a strong line and hook are compulsory to get the maximum of fish into the boat. The bowfin is a master when it comes to getting off the hook. With its hard bony mouth and hard fighting spirit your average will drop when you count the number of fish boated to the number hooked. This fish is not choosey most of the time when it comes to types of bait: shrimp, cut bait, crayfish, worms, porkrind, and minnows take a heavy toll when the conditions are right.

The first day I met Avery Hinson, who was an old pro when it comes to catching blackfish, he showed me how to rig my terminal tackle and how to fish the bait for best results. From then on I enjoyed catching the tackle busters on bait, and when the mood struck them right, I caught some on lures. Most any day I would catch between 15 and 30 and lose half that many.

THERE are several ways to rig up for blackfish, but I prefer this way: after putting a sliding sinker on the line, tie on a treble hook; then pinch a split shot about six inches above the hook to keep the sinker from sliding down to the hook. Then cut off one barb to help minimize hanging up of the bait on logs and other snags. I prefer shrimp because it is easy to buy and if you do not use it at one time just refreeze for the next trip. Keeping minnows and crayfish alive can create a problem at times.

After baiting your hook, lower it to the bottom; then jig the bait up and down while trying to keep it far enough from the bottom to prevent hanging. Let the weight bump bottom occasionally to keep contact with the bottom. Fish the bait like a jig, but keep it a little higher off the bottom. When you feel a fish take the bait, jerk hard and don't give the fish any slack line until it's in the boat. These critters will show you the importance of a strong sharp hook. Don't feel badly about losing some of them, because blackfish are masters of the game.

About a week later, I found an old man sitting on a log near my favorite fishing hole using a limber cane pole and Georgia wigglers for bait. He had caught several when I got there and lost a couple before I got my boat into position. He told me that the blackfish had been tearing up the water, rolling on the surface and his bait too. I eased my shrimp-baited rig into the water and one clobbered it almost the second I raised it off the bottom. After setting the hook, I had a hard pull, but the hook tore out as the fish surfaced.

Quickly I baited up and soon had one in the boat. The old man and I went on to catch 10 or 12 before the action ceased. Even in water that's 10 to 15 feet deep, the shadow of a boat will give these wary fish "lockjaw." Usually after catching two or three in one spot, the action will slow down even if there are more fish around. When working a deep hole, I work around the edge gradually and fish to the middle while keeping the boat as far away as posible.

A long cane pole is necessary to consistently catch these sharp fish. When the fish quit rolling on the surface then you know that something disturbed them.

The old man told me about hanging one in the White Marsh that towed his boat around with him in it for a while before reducing his long cane pole to a two-foot handle. It's not uncommon for the blackfish to reach 10 to 14 pounds. I was told that the best time to catch bowfin is between 10 a.m. and 4 p.m. However, my most successful times have been early or late in the day. Usually early morning and late afternoons the fish are foraging for food in shallow water; then they retire to the deep holes during the middle of the day where the angler can bump his bait near their lair during the mid-day siesta. These fish can be caught better through the entire day than most other fish. So if you are a late sleeper by habit or enjoying a vacation and sleep late, you can still enjoy some great fishing for these deluxe tackle busters.

DURING the doldrums of late summer, most large game fish are caught before sunup and near dusk; this leaves most of the day for anglers to cast into unproductive water, or try for the bowfin. Late summer is a good time to try this great fish.

The bowfin prefers the quiet waters of weedy swamps, sloughs, bayous, vegetated lakes, and large streams. When fishing for this tackle wrecker in the early morning of a sunshiny day, always fish the sunny side of the stream where most of the fish will be surfacing.

One can easily identify the fish by the long dorsal fin which extends almost to the caudal fin, and the large round black spot at the upper base of the rounded tail. The male sports a bright red or orange halo around the black spot, most vivid during the spring spawning. Color ranges from olive brown to dark above, shading to lighter brown along the underside.

If you are the type of fisherman that doesn't have to catch the ones with fancy names, or ones which don't have to appear in the game book lineup, but want a savage feeder and a rough-house fighter, then grab your strongest tackle and come on down where the bowfin lives. ▲▼

WHAT kind of hunter was he, this creature that had fashioned the almost jewel-like arrowhead some 2,000 years ago? What had he hunted, and how? Was game really in the great abundance we usually think of when we let our minds wander back into the dim past? The discovery of an arrowhead or spear point opens the flood gates of speculation, and thoughts flit among imaginary scenes of the people and times of long ago.

No one will ever know with any certainty or exactness the details surrounding the lives and times of these Indian tribes that made their homes in what is now North Carolina, although the many artifacts they left have been pieced together to offer us a rather comprehensive account of their existence. To the student of Indian lore, a tiny chip of stone, a bit of pottery, a sliver of bone, can tell a story and fit a niche in the panorama of the unfolding drama of these hunters of the past.

Ernest and Theo Hecht, Phil Lewis, Bob Price, Bob Cuttler, Charles White, and John Rooker of Norlina are just such students. "Detectives" of the past, they are; collectors of Indian artifacts, and reconstructors of an ancient past. Their Museum of Indian Artifacts is a page out of history, with stories—many yet untold — more interesting than fiction. They estimate that they have between five and six thousand artifacts in the neatly arranged, attractively displayed collection, housed in a room in the old hotel building in Norlina.

The Roanoke basin on the North Carolina-Virginia border apparently was the home of many tribes and groups of early American man. So abundant were the artifacts that these people left, that it was no trick at all to gather up 150 arrow and spear points in an hour's time when these men first began their hunts. As the years drifted by, it became more and more difficult to find "good" arrowheads.

When Kerr Reservoir came into existence, the cleared land yielded a fine harvest of items from Indian village sites. When the water level is low, and conditions are right, "hunting" is still fruitful. On one expedition, Mr. Ernest Hecht came across one half of a spear point some two inches in length. The base end of the point was missing, so he marked the location for future trips. The next search uncovered the matching half of the point, and the two pieces are now back together with hardly a seam showing where it was broken.

This kind of "luck" or skill is not always forthcoming, and many parts of artifacts are apparently lost forever. The best

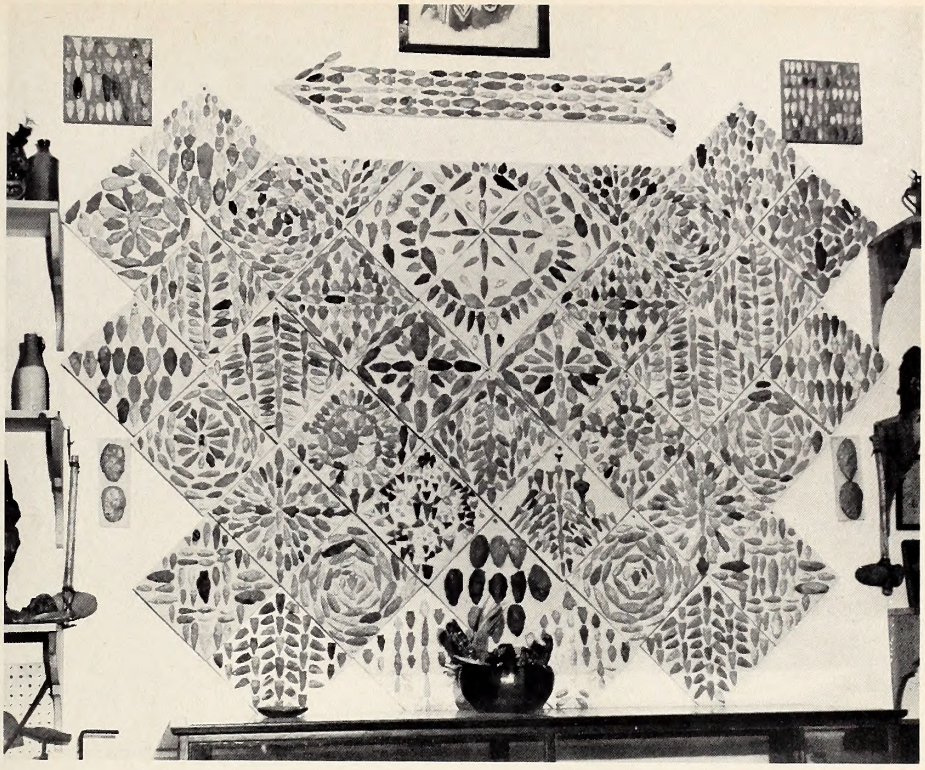
hunting is found at an arrowhead workshop where skilled craftsmen made the points for an entire tribe or group. The ground may be littered with chips from untold thousands of points. Discarded "rejects" indicate that even the best of artisans made a mistake now and then.

White-tail deer antlers were used for "flaking" the points, and these tools are rare finds at the workship sites. Incredible sharpness is possible with the right stone. Even the tiny "bird" points, some less than half an inch long, have been fashioned with delicate precision and are still discovered intact. These points are capable of killing the largest of deer in spite of their tiny size.

Many artifacts were made from soapstone; "these folks had teflon cooking containers six thousand years ago," says Mr. Theo Hecht in a joking manner. There is a large soapstone vessel that likely had many a venison stew simmered in it.

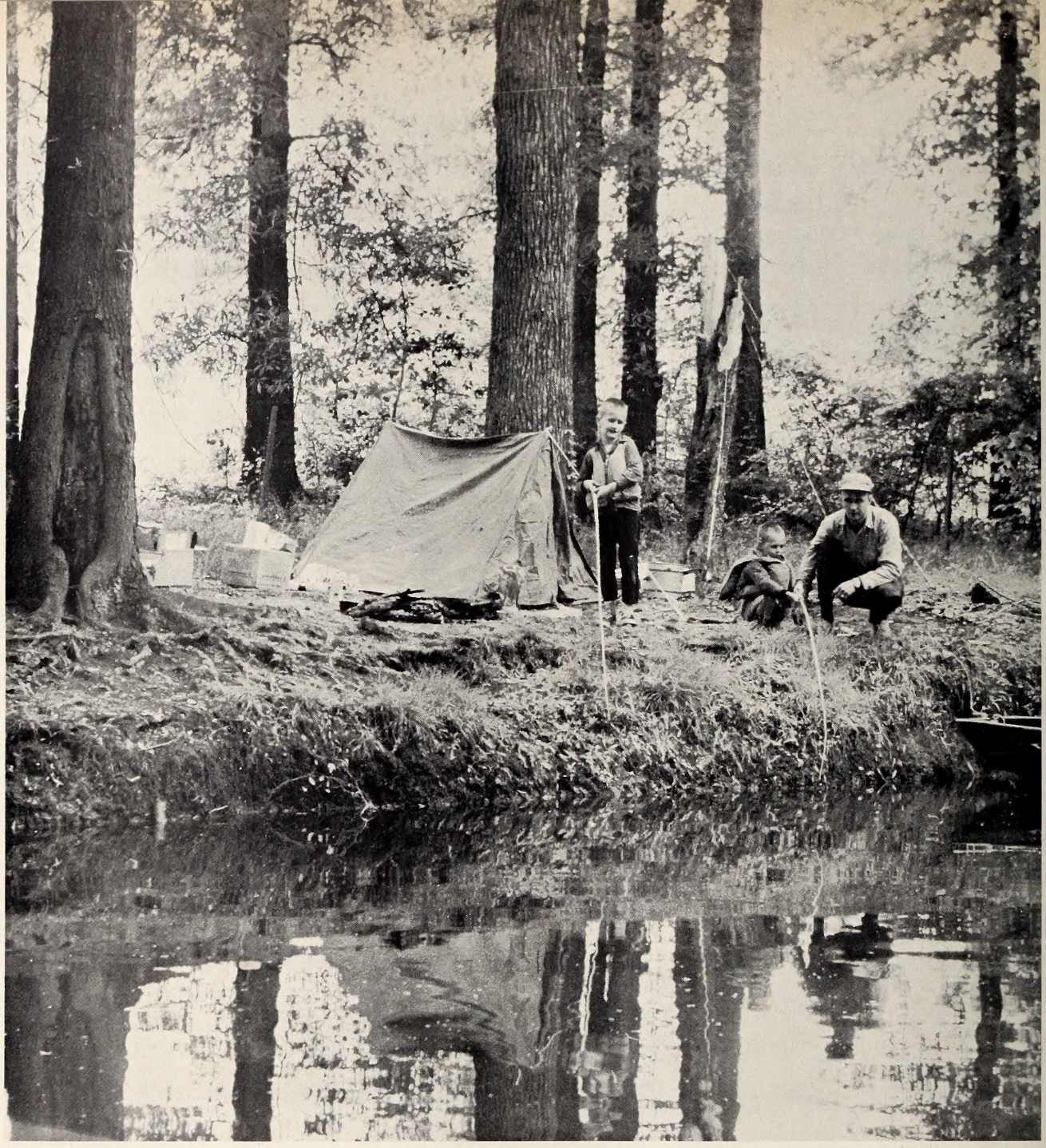
Almost everything in the collection was found within a twenty-five mile radius of Norlina. Yet few human remains have been uncovered by the Hechts. One such skeleton, which was uncovered by Phil Lewis of the Virginia State Archeology Society, resides in a special case in the Museum. This skeleton of an adult male was found in the upper regions of the Roanoke basin. "The beads and such that are shown with the skeleton weren't actually found with the burial, but we know things like this were buried with the bodies, so we put them in the display," explains Mr. Theo Hecht. About one in five burials from this site has yielded grave goods from glass trade beads to shell beads, to complete pottery vessels that were buried with the dead. Authenticity is the watchword with these students of ancient man.

One of the oldest points in the collection that has been dated from other studies, is a Clovis point estimated to be 14,000 years old. Bows and arrows developed a long time after this era, so it is the first known spear point. ⬍⬍



**Old guns are Mr. Ernest Hecht's department, although many of this collection were gathered from other parts of the world. Many of the display of ancient firearms will still shoot, and most are in good condition. If only they could talk, what stories they might reveal.**

**Many other mementoes line the shelves around the room, each with a historical past. It's well worth a stop when you are next in this section of North Carolina; admission is free.**



# Riverbank Camping

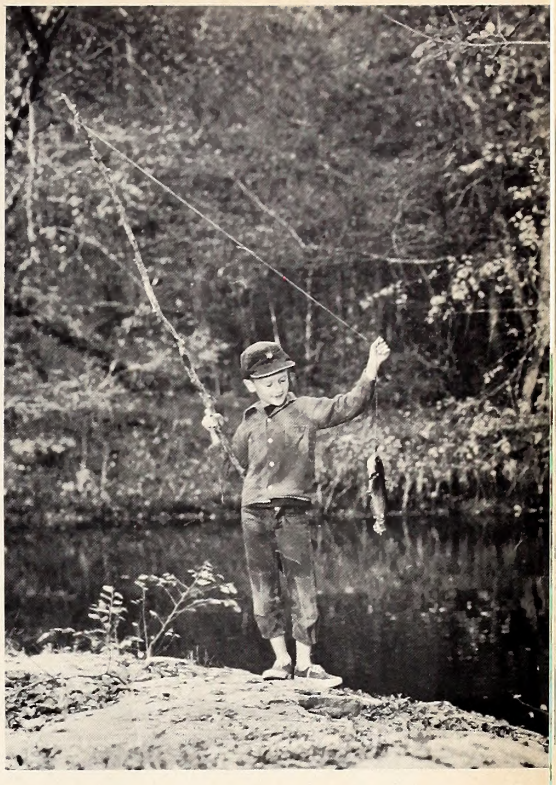
**by F. Eugene Hester**

Photographs by the Author

CAMPING is as much a natural part of boyhood as baseball and hot dogs. Most boys are eager to exchange a warm bed and Mother's good cooking for a night in the woods along some stream or lake.

The smell of wood smoke and the sounds of wild creatures in the night are exciting experiences for a youngster. The calls of owls, whip-poor-wills, bullfrogs and insects may be both scary and fascinating.

For an outing to be successful, however, some careful preparation is necessary. Adequate advanced preparation must be made for chilly nights, rainy weather, mosquitoes and other hardships. Minor hardships may be even add to the enjoyment of the trip, but more serious ones can make the whole outing a miserable one.



**What could smell better than bacon fried over an open campfire? If the camp is located near a fishing hole, so much the better. Most any fish will do, even a squirming bullhead.**

**Maybe you'll even come across an added attraction in the vegetation along the campsite stream or pond. Looks like this one is a bit too large for the pocket; maybe it'll end up on the camp menu!**

Some of my favorite ingredients for a memorable camping trip are two young boys, a riverbank near a favorite fishing hole, a tent, sleeping bags and a big frying pan. Of course, other items must be added to round out the list of equipment.

For a start, pick a sunshiny spring or summer day with a good weather forecast. Take along a few fishing lures and a can of worms and maybe hide away a few hot dogs just in case. Whether its trout, sunfish or catfish, you can't beat a riverbank fish fry with fresh fish you just caught.

Good equipment and careful planning go a long way, but the main ingredient of a successful trip is the endless enthusiasm of wide-eyed youngsters with an insatiable thirst for the outdoors. ▲▼

# The Whip-Poor-Will
# Night Bird of Mystery

**by Luther Partin**

"THE note of the whip-poor-will, borne over the fields, is the voice with which the woods and moonlight woo me."

Not all who have heard the nostalgic call of this bird of the night listened with the pleasure revealed in the words of Henry David Thoreau. Both the American Indians and European settlers in America associated a host of superstitions with the call of the whip-poor-will.

Members of the Omaha and related tribes believed the length of the call could tell the listener how long he might expect to live. The Utes of Colorado thought the whip-poor-will was a magician and a god of the night. Moccasin flowers were imagined by the Iroquois to be the shoes of the whip-poor-will.

The European settlers simply transferred their superstitions about the nightjar to its New World cousin with very similar characteristics, the whip-poor-will. Among other things, the call could foretell marriage or spinsterhood for the unmarried woman, or death for some member of a home if it called nearby.

At least one superstition of European origin may have been well founded, therapeutically speaking. It was believed that a backache could be cured by turning somersaults in time to a whip-poor-will's call. A good type of preventive medicine for this particular ailment was the performance of this bit of acrobatics (daily, if possible, we would assume) to the cadence of any handy whip-poor-will's call. I believe I've heard physicians prescribe almost the same therapy for ailing backs, but without reference to either the time or the frequency of the whip-poor-will's call.

In Tarheelia, we are privileged to hear the call of the eastern whip-poor-will *(Caprimulgus vociferus)*. It belongs to the Order Caprimulgiformes and is a member of the family Caprimulgidae, the only family of goatsuckers found in this state.

The name, goatsucker, stems from an old European belief that these birds visited goats in pastures at night and robbed them of their milk. (We have people today who believe snakes milk cows, so don't thumb your nose).

In addition to the whip-poor-will, other Tarheel goatsuckers include the Chuck-will's widow, the eastern nighthawk (bullbat) and the Florida nighthawk. All four are nocturnal, insect eaters, with large flat heads, small beaks, enormous mouths and distinctive white patches on the wings or tail. Their eyes are mere slits by day, but large and round at night.

There is no great wealth of information readily available about the whip-poor-will, due to its habit of being frequently heard but seldom seen. But a fair character sketch can be assembled from "Birds In Our Lives," (U. S. Dept. of the Interior), "Water, Prey and Game Birds of North America," (National Geographic Society) and "Birds of North Carolina," (Person, Brimley and Brimley, revised edition).

The range in North Carolina is described as nearly the whole state in summer, but largely replaced in the east by the chuck-will's widow *(Caprimulgus carolinensis)*. Like other goatsuckers, the whip-poor-will has a large, bristle fringed mouth used to catch insects at night. It roosts by day, the mottled, gray-brown coloration helps it to blend into its surroundings on a branch, lichen-covered rock, or the woods floor.

Even courtship takes place in the dim light of dusk. The birds dance and touch beaks, usually to an accompaniment of grunts or purrs. There is no nest; the two white eggs, marked with brown and grey, lie camouflaged among the leaves. The young chicks are equally inconspicuous in the woods and need only to remain motionless to escape detection.

Inevitably, we must face the question, how do you tell the chuck-will's-widow from the whip-poor-will? Well, other than by the call, most reference sources are almost evasive. They tend to sum it up by saying the whip-poor-will is smaller and darker. One fairly good point to look for is the color of the tail feathers. According to "Birds of North Carolina," the male Chuck-will's-widow has white or buff on the end half of all but two the middle tail feathers; the female's coloration here is dark. The ends of the male whip-poor-will's outer tail feathers are white, while those of the female are buff.

It is possible to confuse the call of these two birds. I realized many years later that many of the whip-poor-will's calls I heard were actually made by the chuck-will's-widow. The whip-poor-will's call is composed of three loud distinct syllables, while chuck-will's-widow begins with a soft cluck that may not be heard by a distant listener and is followed after a slight pause by a distinct, double-syllabled call.

Someone living in the Upper Coastal Plains area of the state may hear the two birds calling at the same time during early summer nights and jump to the same erroneous conclusion I did many years ago—namely that one was the female and the other the male whip-poor-will. The nesting and feeding habits of both birds are almost identical, making confusion understandable, and even forgiveable, until you have read this. ⬍⬍

### Scenes from the Past

Dr. Thomas J. Henchey and I are residents of the Palm Beaches, but as we have spent many years in our younger days in The Good Old North State, naturally we always return whenever the opportunity presents itself.

Every summer I have been going up to my summer home in Mountain Home which is between Hendersonville and Asheville on Route 25 and he has been going up to his log cabin, near Burnsville for the past 25 years.

I asked Dr. Henchey to tell me something about his life up there and he does it so much better than I could, I am taking the liberty of quoting him:

*Two and a half miles down the mountain from my place is a little settlement called 'Pensacola' on the Cane River. It has a few houses and a couple of country stores and a grist mill. Both stores are run by Wilsons, who are the sons of an old pioneer who was called "Big Tom Wilson." "Big Tom" was the man who guided Dr. Mitchell when he was exploring these parts years ago and it was he who found him after Dr. Mitchell had fallen off a cliff and had been fatally injured. As is generally known Mt. Mitchell was named after Dr. Mitchell and he is buried on top of the mountain.*

*There are lots of bear in this section. In fact, I ran one off my back porch one night. We had no electricity then, consequently no ice or electric lights. It gets real cold up there nights. It takes three or four blankets to keep one warm. The natives built me a nice log cabin up there about 25 years ago. It is amazing what they can do with an axe. The latches on all the doors are made with roots of dogwood and rhododendron and they are just as good today as they were 25 years ago. They built a beautiful fireplace nine feet wide and a locust railroad cross tie for a mantel piece.*

*I kept my meat, etc., in a 10-gallon crock on the back porch with a 75-pound rock on top of it. One day I bought some steaks over at Burnsville, which is 10 miles from Pensacola and had them in this crock. About midnight I heard a big fuss on my back porch. I grabbed my flashlight and ran out there to find a bear had knocked off the big rock and I saw the paper the steaks were wrapped in scattered about. I was sure that he had gotten away with my steaks, but he hadn't. The lid of the crock had flipped over and all he got was the paper wrapping. He heard me coming and slipped off into the brush, for which I was very glad.*

*When I first went up there, I heard of a huge bear that had roamed those parts for a number of years. All of the natives had seen his trail and they had christened him "K e t t l e Foot" on account of his huge footprints. About the only thing these folks hunted during the season, was bears. They all seemed to like bear meat. They canned it same as you would chicken. They were all bear hunters. About the most prominent of them was "Big Tom Wilson." He lived up on the headwaters of Cane River, about three and a half miles up from Pensacola. Most of his family still live there. They wouldn't live anywhere else, even his great grandchildren. His son's wife told me they killed 20 bears one winter. Old "Kettle Foot" must have had a charmed life, as every year, I always inquired about him and everyone had seen his trail but no one ever saw him.*

*One summer three years ago, I inquired about him from one of the grandchildren, and he told me they had finally gotten him. He said they had a female sheep with four little lambs. She was kept up above "Big Tom's" place. He brought two of them down to Pensacola and left the other two with the mother. One day while going up to look after them, he found the mother killed, but the two little ones were still alive, and the tracks showed "Old Kettle Foot" was the one that had killed the mother.*

*They set a bear trap near the carcass and returned the next day to find that "Old Kettle Foot" had dragged the carcass about 50 yards up the mountain. They decided to wire the carcass to the ground and set two bear traps around it. The next day they found he had been there and had gotten into one of the traps, each of which was fastened to a heavy drag. He had pulled the drag loose and up the mountain for quite a way until it got in some rocks and then he had pulled himself free from the trap, but it had torn his foot and he was bleeding badly. They then got the bear dogs and put them on his trail. The dogs soon treed him and they shot him. Ben Wilson told me he was the largest bear ever seen in that section and weighed over 500 pounds.* ▲▼

Fred Kelly

### Wrong Title?

DEAR SIR:

Like Mr. James Davis of New York (no relation) I have often had the same reaction to your treatment of wildlife in the WILDLIFE IN NORTH CAROLINA as he reported in his letter in the June 1968 issue.

However, your reply to Mr. Davis was not very convincing and also was somewhat sterile. You did convince me, though, that a more appropriate title for your publication would be "Gun and Fish Life in North Carolina," which would be in

## KNOW YOUR PROTECTOR

**Arthur Pack**

Wildlife Protector Arthur Pack was born July 24, 1913 in Polk County. He received his education at Stearns High School in Columbus, North Carolina. He is the son of the late Otis Pack and Mrs. Annie Bell Pack of Millspring, North Carolina.

Prior to employment with the Wildlife Resources Commission, Pack was employed by Chandler Brothers Construction Company of Virgilina, Virginia and later was engaged in farming.

Mr. Pack was employed July 20, 1941, at which time the Commission was part of the Department of Conservation and Development. He has been assigned to District Nine for twenty-six years and has attended all In-service Training Schools at Chapel Hill, North Carolina since the training schools originated, with the exception of one due to illness.

Mr. Pack has served as Supervisor and Chairman of the Board of Soil and Water Conservation Service in Polk County for seventeen years. He is married to the former Georgia Screven of Tryon, North Carolina. The Pack's reside in Tryon. They attend the Tryon First Baptist Church. They have two sons Arthur L. and Phillip A. Pack of Tryon, and two daughters Mrs. David W. Preston of Spartanburg, South Carolina, and Mrs. James C. Bradshaw of Tryon. Mr. Pack's hobby is raising and dealing in beef cattle.

## DIVISION ENFORCEMENT RECORD FOR MAY, 1968

**HUNTING & FISHING**

| | |
|---|---|
| Persons checked | 58,298 |
| Total prosecutions | 1,061 |
| Total convictions | 1,024 |
| Total cases not guilty | 16 |
| Total cases nol prossed | 21 |
| Total cases dismissed | 0 |
| Total fines collected | $ 2,929.60 |
| Total costs collected | $10,378.80 |

**BOATING**

| | |
|---|---|
| Persons checked | 14,819 |
| Total prosecutions | 368 |
| Total convictions | 362 |
| Total cases not guilty | 1 |
| Total cases nol prossed | 5 |
| Total cases dismissed | 0 |
| Total fines collected | $ 686.40 |
| Total costs collected | $ 3,606.45 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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keeping with its stated mission: namely, "A monthly magazine devoted to the protection and restoration of our wildlife resources and to the improvement of hunting and fishing in North Carolina." It further indicates to me that your interest in conservation of wildlife is only secondary to "exploring ways to improve and expand hunting opportunities." If this is true, then why not give your publication a more meaningful title?

I am not opposed to hunting and fishing. On the contrary, all my mature life I have enjoyed hunting and fishing. I am opposed, though, to the conservation or "management" of our wildlife resources for the purpose of providing an outlet for the "aggressive, blood - thirsty, license-buying hunter," which you glorify in your letter to Mr. Davis; while in the same letter you ridicule the bird-watcher.

I am also opposed to the apparent editorial policy of your publication, which encourages the "kids, ages 8 or 9" to kill a living creature. It has almost become a tradition in this country that we have to literally wean our young ones on a gun. One would think that the Indians were knocking on the stockade gates! There was justification in the early frontier days to teach the young the proper use of a gun, not only to provide food, but also for survival. I can see no civilized justification today.

I would suggest that such a policy could in some measure contribute to the firearm violence which is plaguing this country today. Handguns should be restricted to the military, law enforcement agencies, legitimate gun clubs, and to those responsible citizens who require them incidental to their profession. Likewise, rifles and shotguns should be restricted to those who can show to law enforcement agencies a justifiable need, such as responsible hunters, farmers, etc.

As a first step toward this end, all mail-order purchases of firearms should be stopped, and all firearms registered and users licensed. Above all, firearms should be kept out of the hands of juveniles. Unless the senseless traffic in firearms is stopped and effective controls placed on their use, it can only lead to more gun proliferation and more indiscriminate killing of men and wildlife.

I would applaud a change in the editorial policy of WILDLIFE IN NORTH CAROLINA to reflect the foregoing.

J. W. DAVIS, WILLISTON

DEAR SIR:

I certainly did like your letter to Mr. James Davis in the "Crackshots and Backlashes" part of the June issue of WILDLIFE magazine.

After looking at it, I don't know how it could have been said better. Congratulations on a fine small piece of writing.

Frankly, I don't hunt at all, but I see your point perfectly and agree with it all the way.

DR. J. E. ADAMS, SANFORD.

DEAR SIR:

I was disappointed to read your reply to Mr. James Davis concerning hunting in North Carolina.

There are many arguments to defend hunting with, but why use the two most-worn replies that all humans eat meat or that hunters are really great conservationists because legislation sends hunting license revenues back to wildlife control and management. This is like trying to justify alcoholism by the fact that ABC revenues go back to public education and this same type logic would

condemn boys for squirrel hunting because of what happened to the buffalo, the passenger pigeon or the Florida alligator.

Then why jump in on the "bird-watcher with his field glasses and notebook"? Surely everyone against hunting is not a bird-watcher any more than are all bird-watchers non-hunters. To say the bird-watchers are benefitting from hunting license revenues and taking a free ride with conservation is to ignore the tremendous revenues of such organizations as the National Audubon Society, all the results of gifts with no license purchases or privileges involved. Surely, some of the benefits of these revenues are enjoyed by hunters, also.

Not to belabor the point, but how about defining a "dickey bird"? Could it be any bird that is inedible or, by chance, could it be similar to the one on the cover of this issue containing your reply?

I'm still with you, but please try to keep from falling in that trap that causes all hunters to brand nonhunters as pansies of some sort.

H. G. STYLES, FAYETTEVILLE

### Any Doubt About Cougars?

DEAR SIR:

I noticed an article entitled "Does Track Prove Cats Live in North Carolina?" in THE CHARLOTTE OBSERVER. I thought that you may be interested to learn that I KNOW that there is, or was, at least one cougar in North Carolina.

In July 1966 we had been on an afternoon's visit to Town Creek Indian Mound. We were returning and were about 10 to 15 miles north of Wadesboro on the road from Mount Gilead (Highway 109), when we spotted a large animal standing at the side of the road about 500 yards ahead. As we got closer it started to cross the road and it was obviously a full grown cougar. It started to walk by the side of the road, and we passed within 20 to 30 feet of it.

There were six people in the car—four adults and two children—and we all saw it. We have seen cougars many times previously in zoos and museums, so we are certain of the identification.

We were so excited at seeing a cougar that I stopped at the next store a few miles farther down the road and asked the storekeeper if anyone else had seen a large cat in the vicinity. He said, "No," and that he had only heard of bobcats in the area.

On reaching Wadesboro, I noticed a parked police car with two policemen sitting in it, so I told them of my cougar sighting just in case one had escaped from a local zoo. They told me there were no reported escapes in the area and that they had never heard of a wild cougar around Wadesboro.

There was no possible doubt about the animal being a cougar. It must have been eight feet from nose to tail, with its tail nearly as long as its body.

I felt that someone in your Department would be interested in this, especially after reading the article in the paper and learning that there is some doubt about cougars existing in North Carolina.

KEN BROOKS, CHARLOTTE

DEAR SIR:

Regarding the cougars in North Carolina, I am positive we have a few in Joyce Kilmer Forest, also in Snowbird Mountain.

Bill Farley and Clyde Davis saw one last fall while on a boar hunt in Joyce Kilmer Forest. Cotton McQuire and Sam Stewart shot at one and missed it several years ago on Big Snowbird Creek. I have seen their tracks in the snow in Snowbird Mountains.

I am very familiar with cougars. I worked for years among them in the Cascade Mountains of Washington state in lumber camps.

CLAUDE HYDE, ROBBINSVILLE

DEAR SIR:

Purely enjoyed your job on the panthers. Think you've got a thing going there hard to turn loose. Response will increase. Sightings multiply, stories will quadruple. Everybody will get into the act. You and I know how silly that is so I won't make a fool of myself.

But there is this woman at Aquone, North Carolina, Mrs. Horace Bryant—. Anyway, she saw 'em, a brown one and a black one. You know somethin' else? They don't holler, they cry. And you can hear them for two miles. And they don't cry twice from the same place. They cry 'way up on the ridge and then they move on for a mile or two and cry again. That's Paul Bryant that knows about that, he's the son. And the dogs run under the house and whine when a painter comes around. They'd chase a wildcat or a bobcat, and maybe a bear. But they hide from a painter. That's why painters don't get treed or chased.

And for a real fact I was caught between a large mountain lion and a deer with his throat cut, out in California on a deer hunt. He finally came to within 15 or 20 feet of me. No, he didn't eat me. He reluctantly turned around and left. That was hairy. But it proves they don't eat humans. Or at least they don't eat scared meat.

CAM MacRAE, CONCORD

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# Whip-poor-will

Very few of us have the opportunity to see a whip-poor-will nesting, and even fewer see the fluffy young of this secretive bird. But here they are, captured by the camera of Robert M. Geist of Chapel Hill.

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# Wildlife IN NORTH CAROLINA

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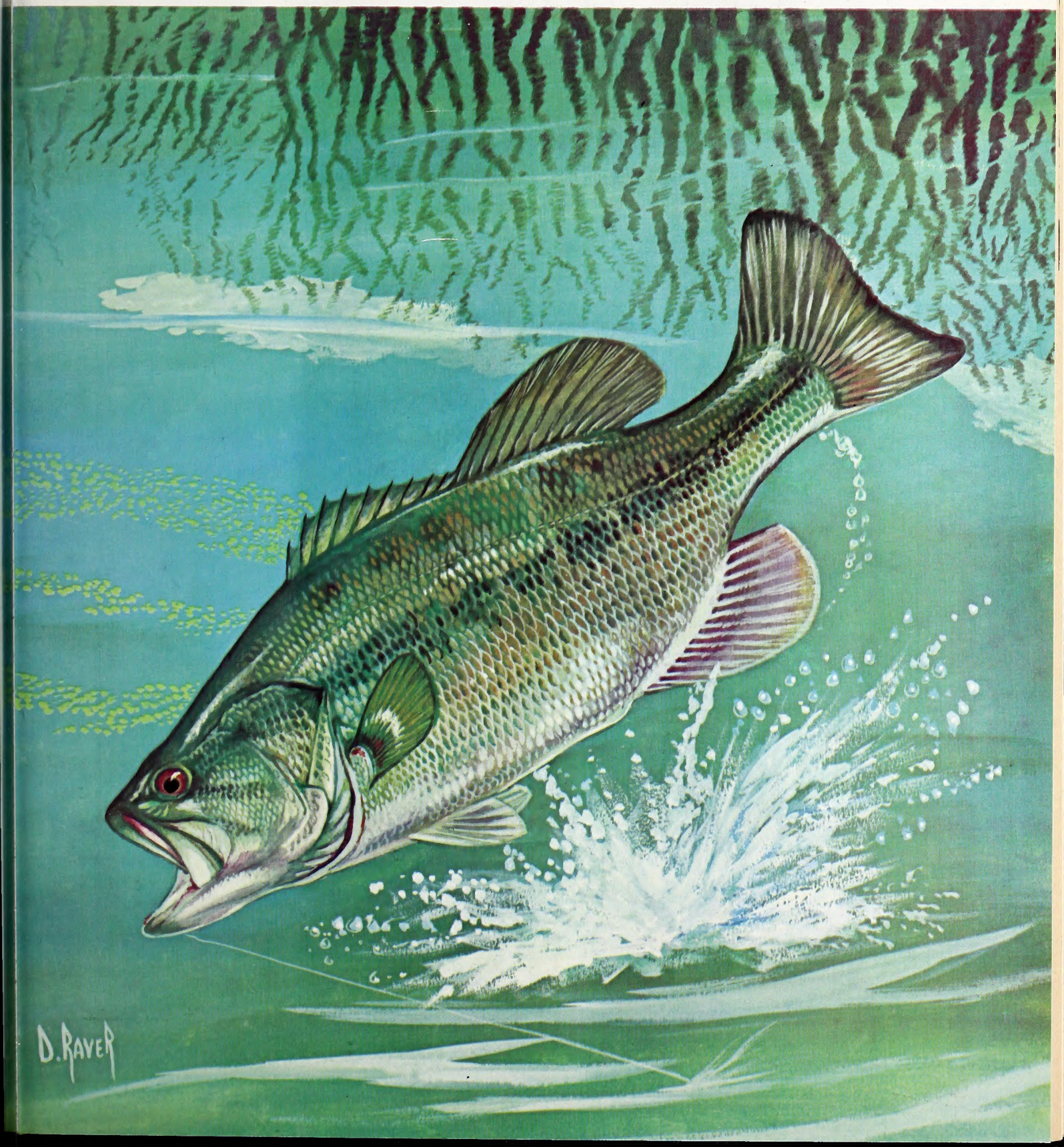

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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VOL. XXXII, NO. 9 SEPTEMBER, 1968

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EDITORIAL STAFF

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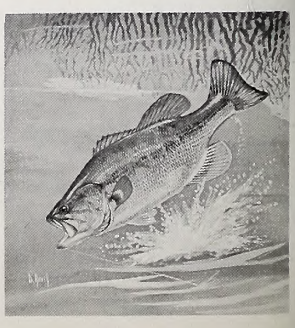


It won't be long until the largemouth bass and many of his kin will look kindly again upon the offerings of the fisherman. In other words, better fishing is just around the fall corner. The largemouth is certainly available in our state. A 10-pounder is a whopper, with the state record at 14 pounds, 15 ounces, caught from Santeetlah, by Leonard Williams. Painting by Duane Raver, Jr.

PHOTO BY JOEL ARRINGTON

# Late Summer

**September has a bit of difficulty making up her mind whether she is a summer month or in fact, fall. We'll let you decide about the title of this Manns Harbor scene of tranquility. Speckled trout fishermen will soon be here.**

by Nell Lewis
*Greensboro, N. C.*

# We the People...

**What is lost when wild flowers like these purple trilliums and dogtooth violet (right) are unearthed and destroyed? Really more than the flowers themselves; a part of the very dignity of Nature and the judgement of man dies with them.**

PHOTO BY JOEL ARRINGTON

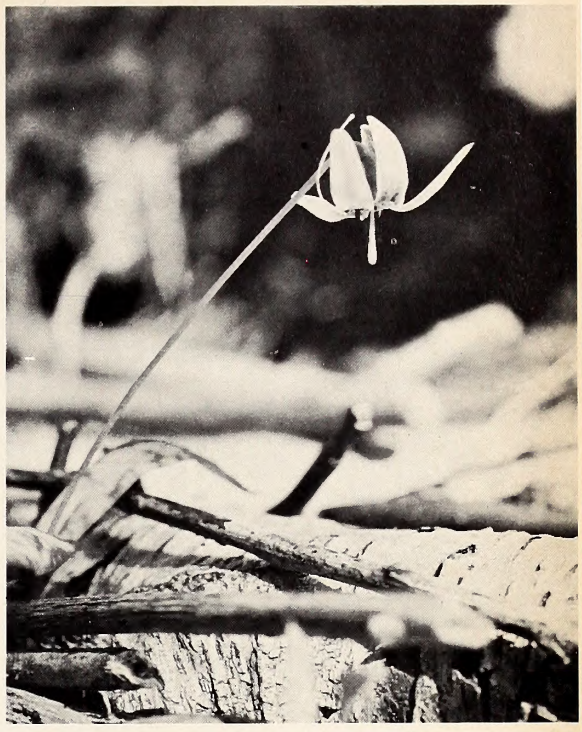


PHOTO BY JIM LEE

THE afternoon shadows have lengthened and the lovely and mysterious loneliness of autumn snuggles in their depth. Splashing over the majestic mountains, sweeping down across the lowlands and racing through the meadows, Indian Summer is leaving a trail so wonderously beautiful and fleeting that nature lovers feel an urgency to stay yet afield until the last golden moment of this flamboyant season is past.

Since early spring, erratic this year, the great highways, the small byways, and the winding uphill-downhill trails have guided tourists into the wild and natural areas of America to enjoy the bounty of the land. Rescued and protected by state and federal authorities, these oozing miles of acres of woodlands, forests, lakes, rivers and streams belong to "we, the people".

Unfortunately, too many vacationers take this fact literally. With trowel and basket in hand, they step carefully over or around the countless signs stating the fine for picking or digging wildflowers—the signs asking that these priceless gifts of nature be left for others to enjoy.

Using the stealth and speed of any thief these avowed conservationists, turned wildflower gardeners, lift "their" portion to take back to some city garden, far away from the cool, rich darkness of the hills, or the moist, fertile banks of a rushing stream.

Without a qualm these otherwise honest citizens are helping to destroy that which cannot be replaced. Their own justification for this act has many moods, many faces.

"When I dig a plant I have in reality prepared and left a nice, 'plowed' space for several seeds to fall and replace it. And just think, by taking it to my garden, I'm carrying on its propagation in another area," one garden club president boasted.

"Look how many flowers are here! How could these few in my basket possibly matter?" An enthusiastic gardener asked, unmindful that from awakening spring until yawning autumn, thousands of "we, the people" with the same reasoning as his will have passed that way.

"I watch for the forest ranger while mama snitches flowers," a small boy beamed slyly. "She puts them in our picnic basket and covers them with a table cloth. We never get caught!"

And so the conscience is soothed. Regretably, only a small percentage of these stolen treasures will survive beyond the first or second year in their strange, new home.

A plant from the towering mountains, nourished by the accumulated humus of many seasons past and watered by heavy shrouds of morning fog and frequent, quick rains, is rarely productive elsewhere. Neither can those from the shores of the restless ocean or the wind-whipped coastal bogs be expected to thrive inland.

There is an honest and practical way to develope ones own wildflower garden. In fact, it is the duty of concerned naturalists everywhere to watch for wild areas around them that are to be developed for industry or residential sections. Ask permission to go ahead of the monsterous bulldozers that are daily sweeping the land clear of everything but hard bare earth; gather the doomed flora for use in a protected garden.

The plants, shrubs and even small trees can be dug and transplanted successfully since they are natives and would not require shipment to some distant place. They will continue to give years of beauty and enjoyment.

Enjoy the state and federal protected wildlings; hide their fragrance in your memory and capture their elegance in photographs. Then leave them where they are, tended by nature, to greet another spring, another generation, another time. ⬍

# Streaks of Gray

by Luther Partin

SEPTEMBER is upon us again and dove shooters, with their ranks increasing each year, are eagerly awaiting the magic hour of 1:00 p.m. (Eastern Daylight Time) on September 2.

The popularity of the sport has not yet peaked, but the availability of places to seek the sport may have already begun to decline. (The Wildlife Commission's public hunting areas mentioned in this issue are designated to help alleviate this problem.) The man with the gun must bear the bulk of the responsibility for this situation. Contrary to what many seem to think, the trespass laws haven't been changed. It's still a violation of the law to hunt without permission of the landowner. And some landowners almost put trespassing in the same category with breaking and entering.

The same fellow who blows his top when the neighborhood kids ride their bikes across his half-acre lot may be the one who cheerfully drives across the farmer's newly planted grain field or tramples soybeans ripe for harvest.

A dairy farmer near Raleigh found a 100 feet of electric fence missing and several of his cows grazing along the highway where they could easily have caused motor vehicle accidents and loss of human life, as well as the loss of valuable milking stock. He later found a car in a cut-over corn field with most of the missing fence wrapped around the chassis. The owner was under the shade of a nearby tree, blasting away at any dove that came within 75 yards.

His excuse for running through the fence was that "it shouldn't have been put there in the first place." He made no other explanation for the trespass and property damage and became very indignant when reminded of the illegal nature of his actions.

Fortunately an extreme case like this doesn't happen very often. But simple trespass for the sake of shooting a few doves occurs quite frequently in the early season. As a result, printers are turning out more and more NO HUNTING signs. Surveys across the nation indicate that most posted land can be opened to hunting by the simple courtesy of asking permission and showing due respect for the owner's property rights.

There seems to be a trend developing in the direction of purchasing, or securing for some type of consideration, hunting and/or fishing rights on private property. (See "New Crop For the Farmer", this issue.) This is usually done by groups of people, quite often incorporated, and they have no qualms about protecting their rights from intruders. If this type of arrangement progresses far enough, the day is not far when the sportsman without land or membership in such a group will have a hard time finding a place to hunt. So it would seem to be only good business for the hunter to conduct himself in such a manner that the landowner remembers him kindly, if you wish to apply the profit motive to the relationship between people.

### What to Take

Once the problem of access has been resolved, some thought should be given to preparation. August weather often prevails through much of September, so dress lightly. This is in reference to clothing weight, not color. A camouflage suit is nice but certainly not necessary. Drab colors are sufficient, particularly in the first season. Try to avoid white, but if you have to go from the desk directly to the field, a makeshift blind of dog fennel or some other tall weed can disguise even a white shirt. But remember, sudden movement may be more disastrous than bright colors.

Insect repellant, shatter-proof sunglasses, and some cooling liquid refreshment (non-alcoholic, of course) will help. Some type of seat will add to the hunter's comfort; it may be a five-gallon bucket that can also be used to carry doves and spent shells, or a folding outfit complete with shell and game bag. Footwear should be comfortable and something that will not be damaged by scuffs and scratches. Low cuts are least desirable as they tend to collect dirt and trash. By the same token, cuffless pants will make the womenfolks easier to get along with when you collapse on the couch, or when they're getting your clothes ready for the washer. And they're also a safety factor when walking along with a loaded gun.

There are several schools of thought concerning which gun barrel length and choke are best for doves. The following story is offered to help clear away some of the smoke of confusion.

**A branch or two of scrub oak, a few sprigs of dog fennell . . . these will serve as cover for the dove hunter. But don't move.**

A few years ago on the Sandhills Wildlife Management Area, I had to stifle a snicker when my dove hunting companion unzipped his gun case and pulled out a toy-like little 28 gauge auto-loading shotgun. My amusement began to turn to pity when I noted that it not only a 25-inch barrel, but an improved cylinder as well.

My first impression was to advise him to shoot only at doves perched on dead limbs not over 50 feet away. Even then I figured he'd wear himself out chasing cripples in the warm September sun.

Discretion prevailed, however, and we seated ourselves under some pines at the edge of a point of woods extending into a millet field about two acres in size. It looked like a logical flyway for birds coming directly into the field, or for birds that wanted to perch in the pines to look the field over before feeding.

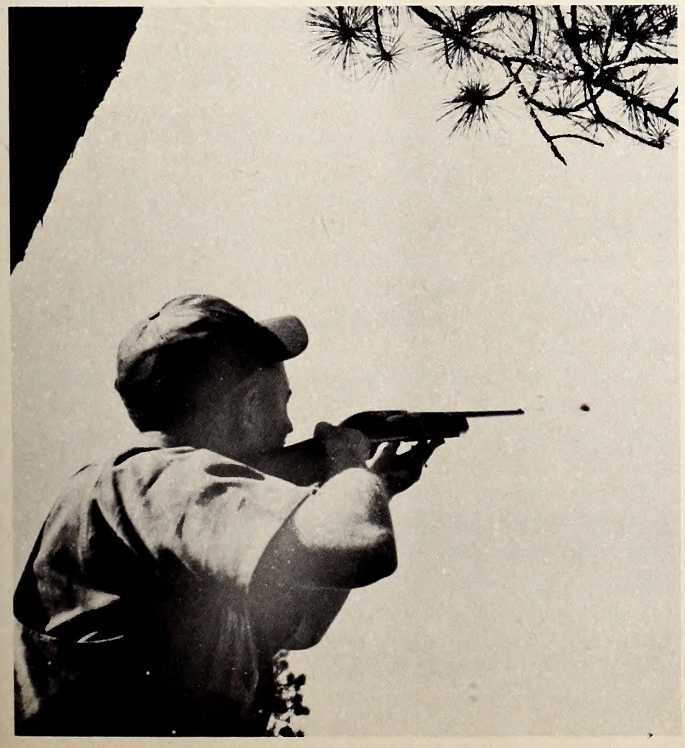
While we were loading up, three doves came streaking in about 30 yards up on my partner's side. My only concern was that his popgun might cause them to flare away before I had a chance to show him that the only gun for doves is a 12 gauge. This concern was promptly replaced by another: namely, how to dodge falling doves while trying to get the safety off a double barrel. He got the lead two and held his fire on the third one, expecting me to get him. But I was so unnerved by what I had just seen that I never did get the safety off.

Well, to make a long story short, after this things got worse. He only used 17 more shells in getting a limit while I used two boxes and barely got half a limit.

This only proved what more astute people have known for a long time—a man of skill can function effectively with a variety of equipment under a variety of circumstances.

**The small bore shotgun speaks, and doves will come down. It's not what you're shooting with; it's where you're shooting. Right, this hunter is wearing comfortable clothing and footwear, sunglasses for comfort and protection.**

PHOTO BY LUTHER PARTIN



## Which Field?

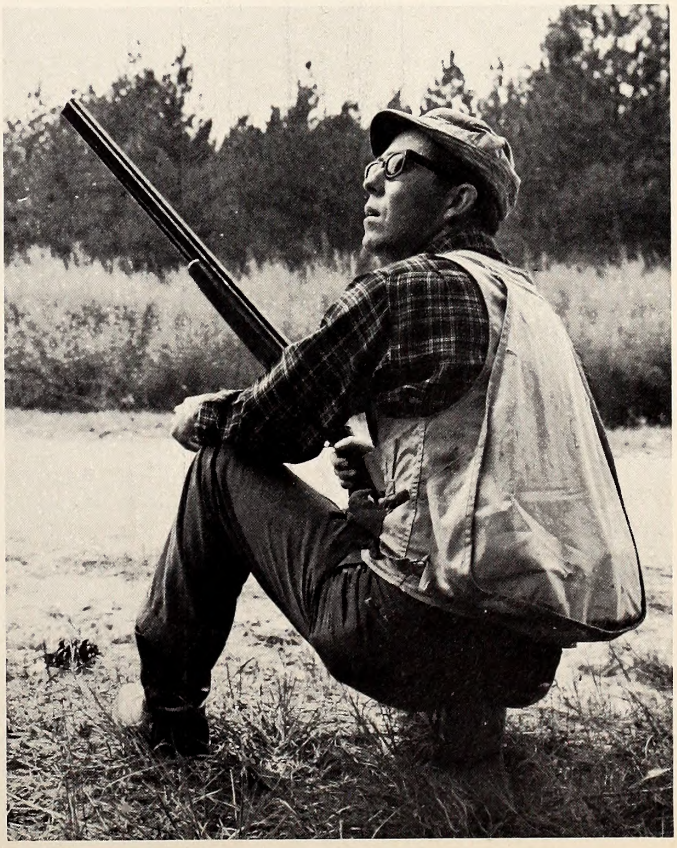
The choice of a shooting field often determines the success of the day. It should have a good supply of seeds doves like and be fairly clean for best results. A freshly cut silage cornfield is most everybody's favorite. Millet plantings with alternate strips of clean ground are very good. Freshly disked fields of crops or weeds often have lots of seed on top and will pull doves like a magnet.

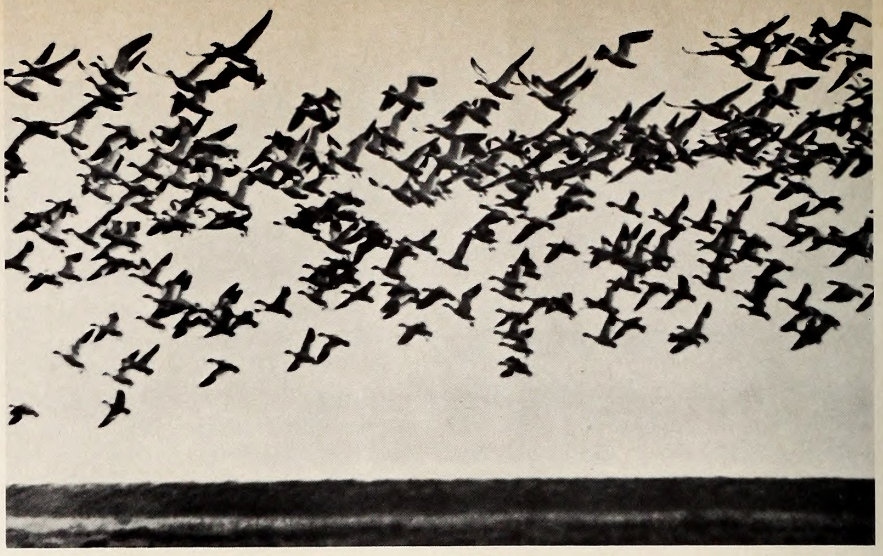
If doves fly out when you get there, go ahead and pick your shooting spot because they're almost sure to come back if there's plenty of food and they're still hungry. If all other things are equal, take the south or west side of the field. This will put you in the shade and the doves in the spotlight. You will be more comfortable and less visible.

A ıy tree that is taller than the others is usually a good spot because doves seem to like to fly over tall objects. A lone tree in the field seems to transmit a homing signal, so don't overlook it. Anything like a fence post or a tall clump of weeds beside you will reduce your chances of being noticed if you remain motionless.

To complete the requirements for a successful hunt, you need enough safe companions to keep the birds moving. The number needed will vary according to the size of the field, but five or six is usually sufficient for a five to ten acre field. Pick your shooting friends carefully; your safety and the privilege to hunt there again are at stake. ⬍

PHOTO BY TOM JACKSON





# Where Wild Geese Fly

by Steve Price

To many people, Pea Island Wildlife Refuge is simply "the place where geese fly wild."

Actually, much more than geese fly wild at Pea Island, for nearly 30,000 birds stay at this Outer Banks wildlife refuge each winter.

"Pea Island was established primarily for snow geese," explains Assistant Refuge Manager J. L. Holloman, "and this year we have about 9,000 of them.

"There are also around 8,000 ducks and 3,000 Canada geese, as well as many others in the Refuge. Over 120 different species winter here." Some of the other species include terns, brant, hawks and herons, as well as swans, egrets and pheasants.

The snow geese, white and somewhat larger than a duck, breed in far Arctic Greenland and migrate mainly through the Mississippi Valley to winter along the eastern seaboard as far south as Pea Island.

The Refuge contains 5,000 acres of marsh to accommodate the birds. There are also a thousand acres of freshwater ponds which depend entirely on rain for their water supply. The winter of 1967-68 was extremely wet, so the ponds were full.

Most of the birds eat the natural vegetation at Pea Island, although Holloman and Refuge Manager William C. (Bill) Good plant rye grass for the Canada geese. In addition, the managers usually burn off the previous year's growth of marsh grass so the geese have less trouble digging out fresh roots.

Created in 1938 as a part of the Cape Hatteras National Seashore Recreational Area and administered by the Fish and Wildlife Service, Pea Island draws few visitors during the winter months.

Those that do come are from up and down the Atlantic coast and they come solely to view or photograph the birds. Most talk to Holloman or Good and receive permission to tramp about the marsh. Others watch from cars parked along the highway, or from a specially-constructed vantage point overlooking one of the ponds.

"You can't stalk birds like you can some animals," said one family from Princeton, New Jersey. "The best thing to do is just sit in a blind and let the birds come to you.

"Cars often make good blinds," they continued. "Birds just haven't figured out automobiles yet, so that's how we do most of our watching."

The family then produced a camera tripod made especially for their car. It simply clamped over the door, so the operator never had to leave the driver's seat to take photographs.

Only part of the Refuge's 6,000 acres are visible from the highway, however, for the feeding grounds stretch all the way across the island to Pamlico Sound.

Holloman, 27, who has been at Pea Island over a year, often takes visitors on two-hour jaunts through the Refuge in his four-wheel drive Scout. During the trips he stops frequently and climbs some of the Refuge's man-made dikes to point out and identify birds. A graduate of North Carolina State University, he holds a Master's Degree in wildlife management. His specialty is waterfowl.

During one of his tours he startled a marsh hawk that had been feeding in the brown broomsedge near one of the ponds. Holloman stopped the Scout and found what the hawk had been eating. It was a rat, the first he had seen on Pea Island.

"There isn't much small mammal life in the Refuge," he pointed out. "I've seen some mink signs, and the manager and I have both seen one otter. Those and muskrats are about all we have here."

Sometimes the ranger stops during the tour to aid geese he suspects have lead poisoning. While hunting is strictly forbidden with the Refuge, shooting is permitted just to the north of Pea Island. Wounded geese sometimes make it to the Refuge.

"Geese can't digest lead pellets," Holloman explains. "Eventually they die because the pellets clog up the bird's gizzard and it can't eat."

The last stop of the tour is on top of a large dike, where visitors have a magnificent view of hundreds of acres of the Refuge, and often see a dozen different species of birds feeding beside each other.

It's truly "the place where geese fly wild." ⬍

Author White (right) talks with William Brauer about the progress of his "commercial" venture in dove hunting.

# New Crop for the Farmer

by Nat White
*Soil Conservation Service*

A wild turkey delayed us for five weeks on our first effort to help William Brauer of Ridgeway improve the wildlife conservation program on his farm. In 1958, Brauer had requested that the Soil Conservation Service lay out a farm pond and furnish specifications for it. We had just started a soils investigation at the damsite that spring morning when a wild turkey left her nest and flew off. Brauer let us know in no uncertain terms that he didn't want us bothering his nesting turkey. "Come back in five weeks," he said.

We returned in five weeks and found that the turkey eggs had hatched. Brauer constructed his pond dam directly over the turkey nest site and impounded a 2.5 acre pond. A group of sportsmen leased the fishing rights from Brauer, formed the Carefree Fishing Club, and took over management of the pond. This was Brauer's first experience at applying "capitalistic principles" to wildlife conservation. Now he is convinced that the system works best when the sportsman pays for the privilege of hunting and fishing and the farmer gets paid to provide the facilities.

Brauer is a true conservationist and sportsman. In November he stopped by the Soil Conservation Service office to discuss his plan with the Warren Soil and Water Conservation District and to make arrangements to land smooth another field—the sixth field that he has smoothed for better conservation and for mechanization.

Brauer is proud of the corn crop he made last year on a red clay field he land smoothed in 1965. His corn yield was 120 bushels per acre on the area that was not harvested for silage. When the silage was harvested, Brauer reported an excellent crop and seven dove hunts over the field.

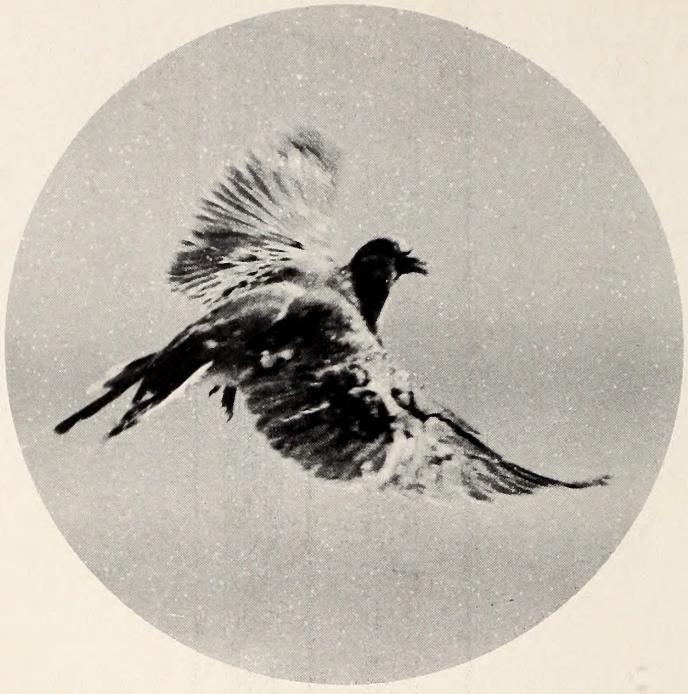
For many years Brauer had permitted hunters to shoot doves over his silage fields. He placed no restrictions and gave no supervision to the hunting. Most of the hunters were good sportsmen who obeyed the law and respected property rights. The small minority of hunters who killed over the limit, abused the privilege, and disregarded safety rules took a lot of the pleasure away from the good sportsmen. Brauer noticed that when a few hunters kept shooting until dark the doves left and did not return. Usually one good hunt was all a field would afford under these conditions.

In 1967 Brauer decided to apply capitalistic principles to his dove hunts. He allowed his nieces to make a charge to hunters, and he had a supervised hunt. All laws were to be complied with, and hunting was to stop at 4:30 p.m. The fields were hunted on Wednesday and Saturday afternoons, and on the first five hunts, excellent hunting was enjoyed by all hunters. Many hunters left the field by 2:30 with a limit kill; some others ran out of shells. Brauer found that sportsmen were delighted to pay for the privilege of hunting his dove fields, and they were grateful for the facilities furnished.

Wildlife biologists estimate that 70 percent of a given year's dove crop is lost to natural causes; hunters harvest only a small percentage. It is good management to run a hunt in such a way that several shoots can be had over the same field and more doves harvested. This allows the farmer to get more income from his field and gives the sportsman much more and better hunting. It discourages hunters from shooting more doves than the law allows, and a supervised hunt is safer than a hunt where there is none.

Many farmers are anxious to turn their silage or millet fields as soon as possible after harvest because they are annoyed by the unsportsman-like conduct of some hunters. Also there is the fear that some hunter will injure another and the farmer will be sued.

Good sportsmanship, some remuneration for the farmer, a thorough understanding between sportsman and farmer, and assurance to the farmer that he will not be sued can add many doves to the hunter's bag and some additional income for the farmer.



# Public Hunting Areas - 1968-69

by Ted Mitchell

If the date September 2, and the time of 12 noon don't ring any bells, you might as well turn the page. But if they do, you know that this is the zero hour for the starting of the 1968-69 split dove hunting season. If you are looking for a place to hunt, here are a few suggestions. Hunting on these areas is open to the public on the days indicated at right. A special season permit costing $5.25 is required in addition to your hunting license. These permits are generally available where hunting and fishing licenses are sold. Remember, the bag limit on doves is 12 daily, 24 in possession after the first day's shooting. Watch those low shots!

Located on Above Map

A. The J. R. Braswell and Covington Estate lands comprising approximately 2,206 acres of land 13 miles south of Monroe and east of Highway U. S. 601 on Secondary Road No. 1919.

B. The Frank Hall Farm comprising 1,340 acres of land located approximately two miles north of Cleveland on Secondary Roads Nos. 1971 and 1972.

C. The Cooleemee Plantation comprising 4,000 acres of land located on Highway U. S. 64, west of the Yadkin River in Davie County and on Secondary Roads Nos. 1176, 1178 and 1185 in Davidson County.

D. The J. T. King and F. R. Keith Farms comprising 2,409 acres of land and located approximately two miles west of the Town of St. Pauls on Highway U. S. 301.

E. The Mitchell Farms comprising 1,552 acres of land approximately 12 miles south of Lillington, east of Highway N. C. 210 on Secondary Roads Nos. 2049 and 2050.

F. The Perry, Booth and Poe Farms comprising 1,180 acres of land located approximately 2½ miles south of the Town of New Hill on Secondary Road No. 1135.

G. The Corinth Community Farms comprising approximately 2,500 acres of land located approximately five miles northwest of the Town of Wilton on Highway N. C. 96 and Secondary Road No. 1618.

H. The Caswell Wildlife Management Area.

I. The Sandhills Wildlife Management Area.

1. MACON COUNTY

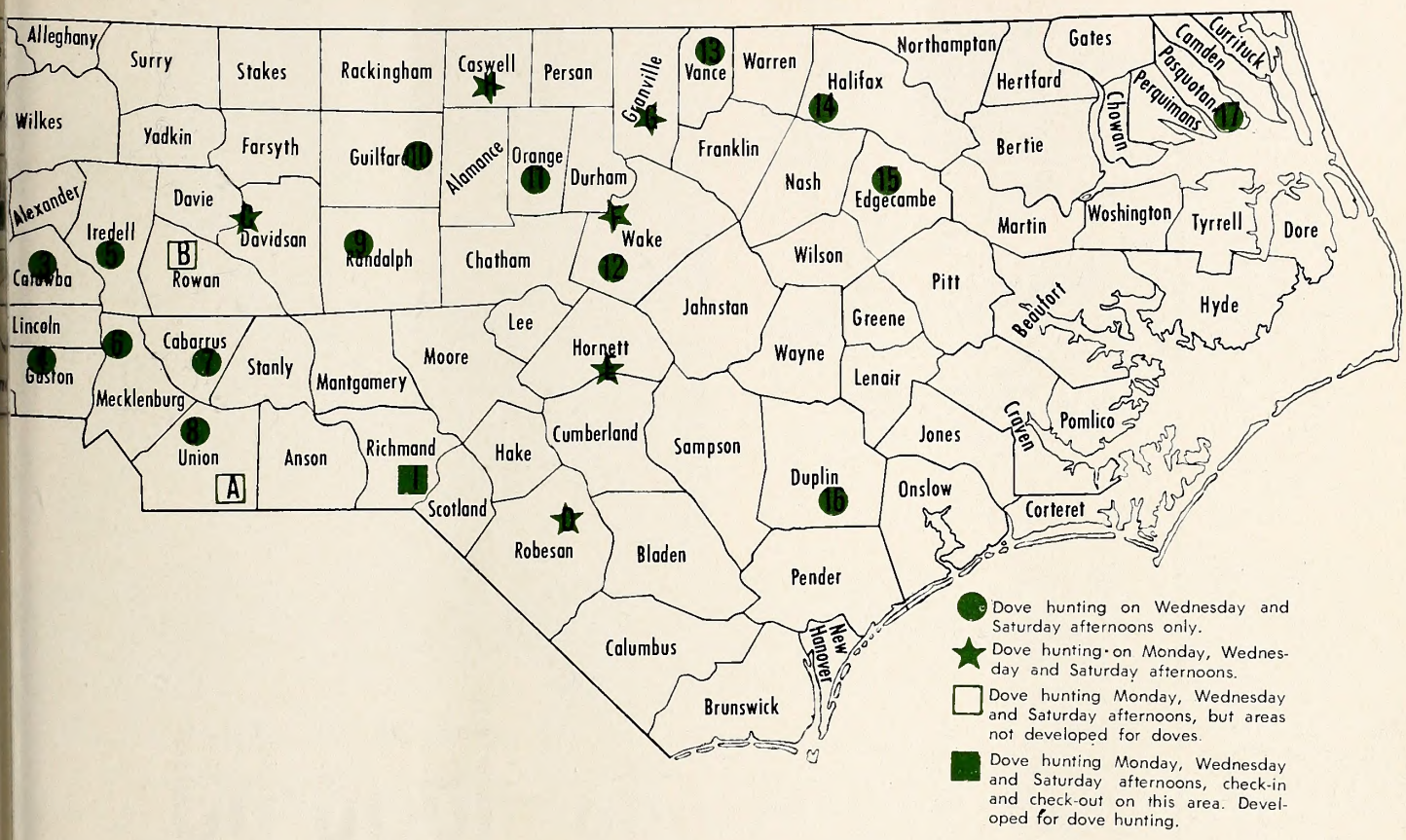
The Jerry Sutton, George Dorester, and Ardell Cabe Farms, comprising approximately 400 acres of land along the Little Tennessee River, four miles southeast of the Town of Franklin on Secondary Road No. 1653 (Clark's Chapel Road).

2. CALDWELL COUNTY

The Wilson Farms, comprising 400 acres of land located approximately three miles northwest of the Town of Granite Falls, one mile southwest of the Town of Sawmills and three miles south of the Town of Hudson on Secondary Road No. 1123.

3. CATAWBA COUNTY

The George M. Sigmon Sons Farm, comprising 400 acres of land located approximately four miles southwest of the Town of Newton, three miles northwest of the Town of Maiden on County Road No. 2013.




4. GASTON COUNTY
The James L. Hallman Farm, comprising 400 acres of land located approximately five miles northwest of the Town of Kings Mountain, six miles southeast of the Town of Cherryville on County Road No. 1401 near Highway No. 216.

5. IREDELL COUNTY
The F. M. Bell, Sr., Farm, comprising 475 acres of land located on U. S. Highway No. 64 and Secondary Road No. 2322 at the eastern city limits of the City of Statesville.

6. MECKLENBURG COUNTY
The lands of the County of Mecklenburg comprising 100 acres of land in Huntersville Township, approximately 12 miles north of the City of Charlotte on U. S. Highway No. 21, and on the east side of the highway.

7. CABARRUS COUNTY
The lands of Lawson A. Foil, comprising 136.5 acres in No. 8 Township, Cabarrus County; go two miles east of Mt. Pleasant on N. C. Highway No 73 to Prison Camp Road (Secondary Road No. 2604), turn left and the farm is two miles on the left.

8. UNION COUNTY
The lands of Leston Hilton, comprising 200 acres in Monroe Township, approximately 12 miles east of the City of Charlotte on Old U. S. Highway No. 74 (Monroe Road) to Sun Valley High School; go right on Secondary Road No. 1377 about one-half mile to Secondary Road No. 1353; turn left, and the farm is on both sides of the road.

9. RANDOLPH COUNTY
The Richard Earl Johnson Farm, comprising 400 acres of land in New Market Township, located between U. S. Highways Nos. 311 and 220, four miles northwest of the Town of Randleman on Secondary Road No. 1939.

10. GUILFORD COUNTY
The Guilford County Farm owned by the County of Guilford, comprising 756 acres of land approximately ten miles northeast of the City of Greensboro, and two miles north of the Town of Gibsonville on Secondary Road No. 2740.

11. ORANGE COUNTY
The Frank Perry Farm, comprising 400 acres of land, approximately three miles north of the Town of Hillsborough, between U. S. Highway No. 70 and N. C. Highway No. 86, on Secondary Road No. 1306.

12. WAKE COUNTY
The Seth Fish Farm, comprising 258 acres of land near the Town of Willow Springs on Secondary Road No. 2752.

13. VANCE COUNTY
The Nutbush Peninsula area located one-fourth mile north of the intersection of Secondary Roads No. 1329 and 1333.

14. HALIFAX COUNTY
The Odell Morris Farm, comprising 700 acres, two and one-half miles west of Halifax on N. C. Highway 561, and two miles south at the end of Secondary Road No. 1201.

15. EDGECOMBE COUNTY
The Bill Dail Farm, comprising 500 acres of land, four miles east of the Town of Leggett on N. C. Highway No. 97 and one mile south on Secondary Road No. 1500.

16. DUPLIN COUNTY
The S. A. Blizzard Farm, comprising 75 acres of land, located 4.3 miles southeast of Kenansville on State Highway No. 50; at the intersection of Secondary Road No. 1737 turn left and go northeast 1.3 miles.

17. PASQUOTANK COUNTY
The Elisha Coppersmith Farm, comprising 184 acres of land, three miles west of Elizabeth City on U. S. Highway No. 17 to Secondary Road No. 1144, south on 1144 1.2 miles to Secondary Road No. 1141, west on 1141 .6 mile to Secondary Road No. 1142, south on 1142 1.5 miles to area.

# Safe Boating Begins Here

PHOTO FEATURE BY
TOM JACKSON AND JOHN R. PARKER, JR.

BOATERS, boating organizations and boating law administrators generally agree that the best approach to reducing boating accidents is through increased education, backed up with a comparable increase in fair but firm law enforcement. And, of course, the education and enforcement team approach has to be exerted in the right place at the right time, an academic problem for the administrator.

There could be more of both, education and enforcement, (plus better boating facilities) if more funds could be put into the program. But the revenue must be fair to the boating public, not an arbitrary tax increase.

More specifically there could be an increase if Senate Bill 601, the marine fuel tax bill, were passed. That is now history as we have previously reported. You supported the bill. It passed in 1967. And as promised there was an immediate increase in the boating safety program.

Pictured here is part of the increased educational effort. This approach is new for the Wildlife Resources Commission and involves a two-part program. One facet is the water safety-boat operation demonstration. This type of program has been around for quite a while but the experienced Wildlife Protector, the Commission's boating law enforcement officer, adds freshness and first-hand experiences.

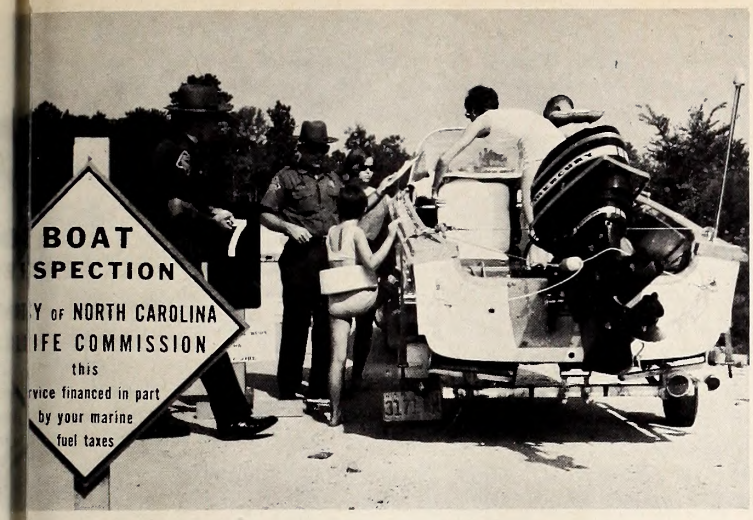
Also a part of the teaching phase of the program is the slide lecture. This will replace the demonstration during the winter, "indoor" weather and for night sessions. It carries the viewer from spring maintenance back to the dock with side trips and safety tips.

The second major section of the Commission's new program is the on-shore equipment inspection. The boater who takes advantage of the courtesy inspection prior to launching greatly reduces his chances of receiving a citation for an equipment violation. Suggestions are also offered on equipment not required, but essential to safety.

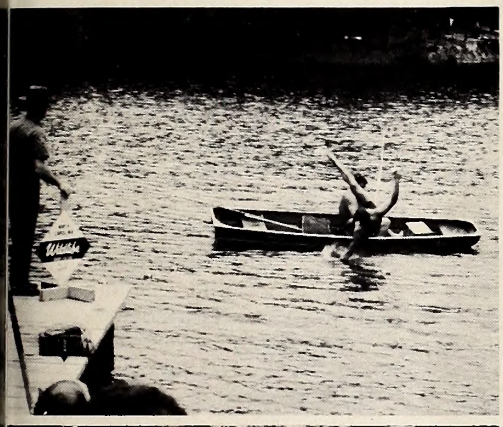
Has the program been accepted? We believe so. For example, by the end of July over 500 boats had been inspected and reports indicated that these pre-launch inspections prevented a number of boaters from receiving citations. Also during the short time since the program initiation, approximately 50 water safety demonstrations were presented to some 4500 adults and youth. Most of the teams are finding that requests are exceeding allotted time.

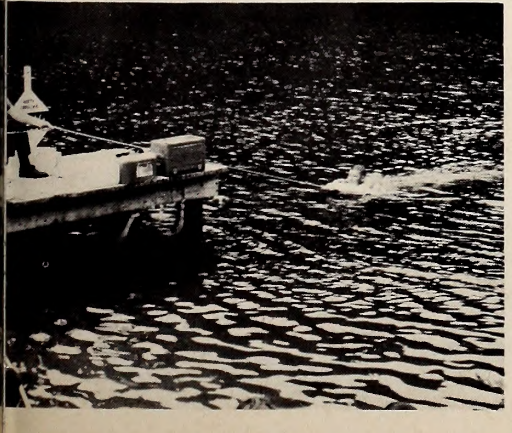
Can this phase of the Commission's boating program be continued? Can the law enforcement effort be increased? And what about the engineering phase of providing boating facilities? Can more access ramps be constructed? Can an efficient waterway marking program be started? Can stream clearing grow beyond a token effort? For the most part, these programs depend on the status of legislation patterned after old Senate Bill 601 after the 1969 General Assembly adjourns. Will the taxes you presently pay on motorboat fuel be spent for water safety and waterways, or will it be spent on highways? Again, a decision is yours.

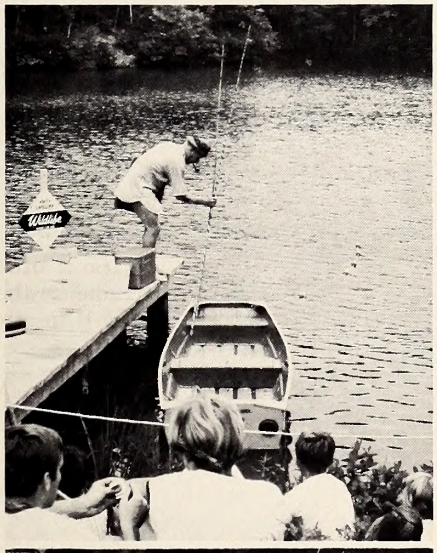
Wildlife Patrolman E. R. Jarrett begins the boating safety demonstration by discussing the life ring and various other life-saving devices and their uses. The audience (below) may be youngsters or adults. Holding their attention is no problem with the fast-moving program provided by the Wildlife Commission's Water Safety Team.

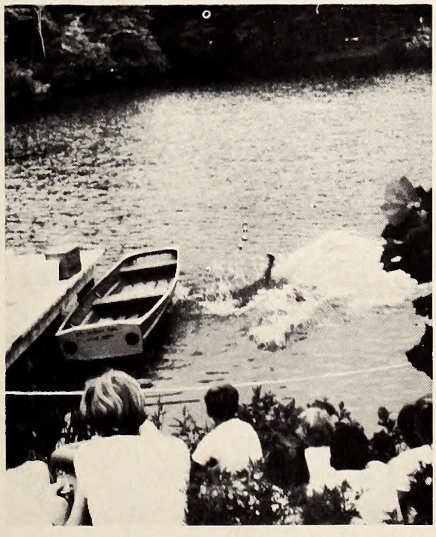


ddition to the water safety demonstrations and instruction sessions, Wildlife Commission also conducts boat and equipment inspections ughout the state. Many violations and accidents are thus prevented boating is made safer.

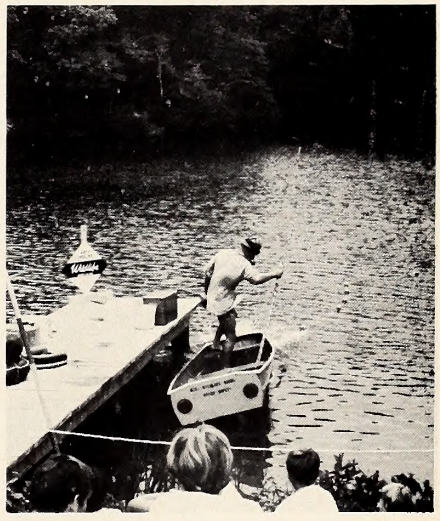




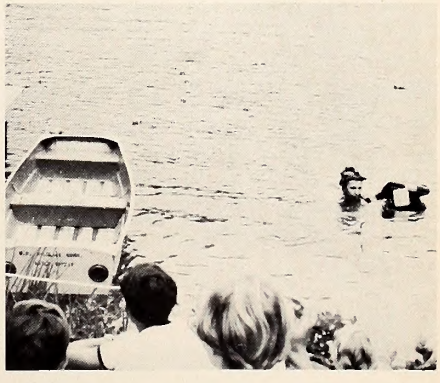




Two members of the trained team deliberately capsize a boat in this three-photo sequence, after one member falls out. Rescue here is demonstrated by using the life ring. Stay with the boat until rescue is at hand.



Wildlife Protector W. D. Augustine, looking like a typical careless fisherman, shows how not to get into a boat . . . and makes a big splash doing it! At least he does come up using the life saving cushion and floating tackle box.



# Popular Beliefs About Hunters and Fishermen

FOR thousands of years, down to the present time, the Nimrods and the kindred of Isaak Walton have played a significant role in the social and economic aspects of primitive societies, particularly when agriculture was limited or uncertain. More recently they have promoted sportsmanship. Allowing for all their primitive implements, these hunters and fishers were largely responsible for the ongoing life of the family or tribe—a far cry from modern commercialized fishing, vast development of livestock and poultry, scientific and mechanized farming, and enormous means of distributing goods to all parts of the globe. Aside from such production of food resources for our daily use, fishing and hunting nowadays are exceedingly important as hobbies, outlets of personal zest and expertness, and sources of great enjoyment and fun.

On the other hand, hunters and especially fishermen have sometimes been subjected to hilarious ribbing by non-participating people and often by hunters and fishermen themselves. Perhaps you have heard the following darts aimed directly at these good-natured lovers of fish and game—they never appear to arouse the anger of them at any time: "All are not hunters that blow the horn." "Either you fish or cut bait." "A fisherman's walk; three steps and overboard." "Fish and visitors smell in three days." "A fishing-pole has a fool at one end and sometimes a fish at the other." "Old fishermen never die; they just smell that way." And, as a climactic jab, "Liars, blasted liars, and fishermen."

In addition to these thrusts, a fairly sizable body of popular beliefs and/or superstitions have accumulated about the procedures of good hunting and fishing. In fact, some of them are downright goofy, thus raising the question of whether these sports are pursued with sure-fire finesse or with guessing or with magic, in competition with the weather, personal whims, or ordinary chance. Though you may hold contrary opinions about the artistic skill involved in these sports, you should scan the beliefs below as quoted from THE FRANK C. BROWN COLLECTION OF NORTH CAROLINA FOLKLORE, published by the Duke University Press at Durham, North Carolina.

If you have similar or different beliefs or superstitions about hunting and fishing, please send them to the author at 15 Furches Street, Raleigh, North Carolina 27607. All of your contributions, serious or otherwise, will ultimately be considered for publication in a dictionary of American popular beliefs and superstitions, to be edited under the direction of Dr. Wayland D. Hand of the University of California at Los Angeles, the editor of the last two volumes on "Popular Beliefs and Superstitions" in the Brown Collection. Mr. Clark, who is his official representative in North Carolina in the collecting and correlating of such beliefs, will appreciate your eager participation in this national enterprise.

### Fishing

One should watch the almanac to find out on which days to go fishing.

The best time to catch fish is in the full of the moon in May.

Never go fishing when the sign of the stars is in the head.

When the wind is in the north,
Skillful fishers go not forth.

When the wind is in the east,
The fish bite least;
When the wind is in the west,
The fish bite best;
When the wind is in the south,
The fish bite in the mouth.

Strong winds with a cloudy day make for good fishing.

Fish bite best in the rain.

Thunder will cause the fish to stop biting.

If a dragonfly lights on your cork, it is a sign of luck in fishing.

When dogwoods are in bloom, fish will bite the hook.

It is bad luck to fish on Sunday. One will stick fast to a rock on the creek bank.

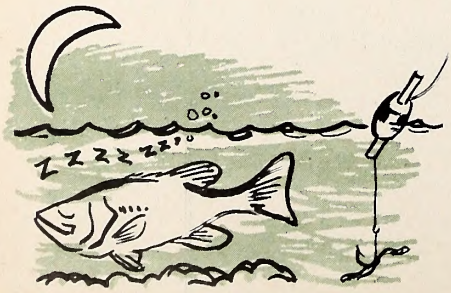
Throw a shoe at a fisherman, and he will have good luck.

The jerking (twitching) of the eyelid indicates that persons will have good fishing.

If you eat onions before going fishing, your catch will be slim.

You will not catch any fish if you carry money along.

If a man meets a woman while on his way to fish, it's bad luck.



by Joseph D. Clark*

If a fisherman meets a hare on his way fishing, he turns back, knowing that his luck is lost for the day.

If you talk while fishing, you will not catch anything.

Never "cuss" while fishing, for the fish won't bite if you do.

If the first fish you hang gets away, your luck is ruined for the day.

### Fishing Pole

It is bad luck to carry a fishing pole on the shoulder.

To cross fishing poles makes the fish stop biting.

It is bad luck to step over a fishing pole.

### Bait and Hook

Get fishing bait between sunset and night.

Don't bring baits in the house.

Worms found in a graveyard are best for fishing.

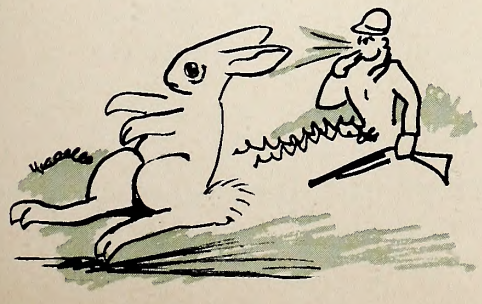
If you spit on an angleworm the fish will bite better.

Mosquito hawks are used as bait for fish.

If onions are put in the bait the fish will bite better.

Chew tobacco and spit upon the bait, and you will have better luck. Use asafetida gum on a fishhook to attract fish.

When fishing, spit on your hook and name it. If he loves you you'll catch a fish.



### Hunting

Hunt when the air is not moving.

When swamps begin to dry up, it is a good time to go hunting.

For good luck in hunting, wear a charm made from a split tail of a lizard.

If you start out hunting, and hear an owl, you may just as well come back, for you will not have good luck.

If a dog trees a big tree, it is a sign of a little animal; if a small tree, a sign of a big animal.

To strike an axe into the ground will "put the dog out." (Dog won't be able to hunt effectively.)

In hunting, a dog will often see a spirit or ghost. When he does, he will get behind his master and whimper.

### Bird Hunting

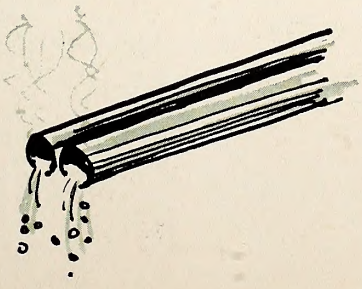
You will find doves and robins near cedar and chinaberry trees during a snow.

If you shoot a turtledove and kill it, the same number of tears that run out of its eyes is the number of years you will live before you die.

### Other Game

I have heard more than one old deer hunter state that the male deer always eat the antlers that they shed during the latter part of the winter.

Fox trails are picked up around locust trees. A good place to pick up a fox trail is around persimmon trees.



Hunt the 'possum on the dark of the moon; he can't see you.

Talk of killing a 'possum and he'll die.

Hunt rabbits after the first white frost. They are fat then from eating persimmons and frost.

If while hunting you see a rabbit, whistle, and he will stop so you can shoot him.

If a 'coon hunting party hears an owl laugh just as they are getting out for the night, they will go back home. But if he holloed, "Coon", they will have good luck.

Where you find acorns and hickory shells emptied, you may know that squirrels are near.

### Guns

Hunters believe certain men can bewitch guns so that to kill game is impossible. By placing hands on the gun and saying a few magic words, the shot will roll out of the barrel of the gun when exploded or fired.

If a person goes out hunting and see a gun lying on the ground, it is bad luck to step over it.

William Geslon, failing to kill anything with his gun, accepted popular advice, by pouring corn over it and feeding hogs on it. He found it better than ever.

Look into the muzzle of a gun after firing, and if blood shows, you have killed the game.

Credit is due the Duke University Press for the use of the foregoing expressions from the seventh volume, "Popular Beliefs and Superstitions," THE FRANK C. BROWN COLLECTION OF NORTH CAROLINA FOLKLORE.

* Joseph D. Clark is Professor of English Emeritus, North Carolina State University, and author of college texts, numerous articles on folklore, and a recent book titled BEASTLY FOLKLORE.

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Revised Fish Book Ready

The third edition of "Some North Carolina Fresh-Water Fishes" is off the press and available for distribution. Because of increased printing costs, the price of the book is 40 cents per copy. For copies, write: State Museum of Natural History, Box 2281, Raleigh, N. C. 27602. This is a revised edition, written by Dr. Frederic W. Fish, and illustrated with 36 color paintings by Duane Raver. The edition was published jointly by the Museum and the Wildlife Resources Commission.

### Passing of Ernest F. Swift

Conservationists nation wide mourn the passing of "Ernie" Swift, former Executive Director of the National Wildlife Federation. Swift, a militant conservationist for many decades died at Rice Lake, Wisconsin in July. He was well known for his straight-from-the-shoulder essays (see "Who Owns the Game?", page 17) and columns on natural resources conservation. A special fund has been established in his memory to help deserving graduate students further their research training. For information on this fund write: National Wildlife Federation, 1421 16th St. N.W., Washington, D. C. 20036.

### New Wildlife TV Series Coming Soon

The Wildlife Resources Commission will again produce a fall and winter outdoor film series for television. The series, WILDLIFE IN NORTH CAROLINA, was started last fall and produced at the facilities of WUNC-TV in Raleigh. It was aired at various times from early 1967 to this past summer by stations WNBE, New Bern; WFMY, Greensboro; WTVD, Durham; WECT, Wilmington; WRAL, Raleigh and the WUNC network. Invitations to air the new series have gone out to the various commercial stations in the State. Schedules will be made public as soon as the information is available.

The only confirmed air time available at this writing is for WUNC-TV. The educational network will start on Friday, September 20 at 7:00 p.m. We invite you to tune in.

# WHO OWNS THE GAME?

by Ernest Swift

AUTHORITY of the states to manage and control all resident game and fish within their borders, as well as claim title to the same, is again being challenged by the Federal government. This time it is by the Secretary of Interior regarding all wildlife species within the borders of federal lands, and especially under the jurisdiction of the Department of Interior.

To the rising generation of young American sportsmen this may come as a new and startling usurpation of authority, having grown up with the snug theory that all resident game belongs to the state wherein it resides. But this issue has a long history of contention, going back at least fifty years. This challenge was responsible for the Migratory Bird Treaty Act with Great Britain and later with Mexico, thereby bringing to bear the treaty powers of the U. S. Constitution.

This challenge was again made by Secretary of Agriculture Henry Wallace during the depression years when he was going to set seasons and bag limits on the National Forests, issue permits for hunting, and charge for them under the one-time famous order G.20-A.

This order of Mr. Wallace threatening the rights of the several states to manage their own game, made the International Association of Fish, Game and Conservation Commissioners grow up over night and put on long pants. Under the able leadership of Seth Gordon, then Director of the Pennsylvania Game Commission and President of the International, the states gave Mr. Wallace such a rough time that he beat a hasty and not too dignified retreat.

FOR years this Federal versus States issue over who has title to wild game has smoldered under a cover of cold looking ashes, but the coals have never been extinguished. It appears as if those forces wishing to see the Federal government take over such jurisdiction have simply been laying back waiting to again fan the flames. To them the time seems ripe with more courts looking with favor on increased Federal controls and with an increasing number of landless people beginning to frown on hunting as a form of outdoor recreation and an age-old tradition of the American way of life.

But the implications are far deeper than appear on the surface. The first step would be to destroy title of the several states to the game residing on Federal lands within the boundaries of the states. This would quickly erode the power to finance state conservation operations through reduced license fees, especially in many of the western states where public land ownership is as high as 80%. In the eastern states this impact would not be so quickly apparent. However, the second step in wildlife ownership would be to pass legislation so that landowners could acquire title to game and fish on their lands or abutting waterways as is now and has been traditional in Europe for centuries.

This drive for landowners to obtain title to game and fish on their own lands has been a declared purpose of some agencies and organizations. If not formally documented, it has been so stated in speeches by their representatives.

So the timetable as contemplated by some of our Federally minded politicians, bureaucrats and those who see wrong in hunting and fishing under the present system, is to destroy the state conservation agencies by drying up their source of revenues and next giving title to resident game to the Federal government on Federal lands and to private owners on their respective lands. In many states east of the Mississippi, hunting on private lands constitutes the bulk of that recreation as some states have little land of their own.

This is something for all state conservation officials, game wardens, game and fish biologists and even state foresters to think about, let along Mr. Average Citizen and Hunter who for generations has been able to hunt on lands leased by his state, on Federal lands or by permission on private lands under the game seasons and license laws of his own state.

IF the title of game finally goes to the individual land owners, the hunter may find himself checking on and off each farm and paying the landowner for each grouse, partridge, rabbit or deer that he shoots. He may have to do the same on Federal lands. The trapper may have to pay a percentage of his muskrat, mink and beaver take if his traps are staked on lands or water where private ownership is claimed. Such prophecies are not a silly exercise of unrealities; they could eventually become haunting facts.

The immediate case in issue resulted from the National Park employees killing some 15 deer in the Carlsbad Caverns National Park in New Mexico, and in direct violation of the laws of that state. The deer were shot as part of a research project. They were shot, their stomachs removed and the carcasses left to rot. Offers by the New Mexico officials to assist in the study and to issue colecting permits according to the laws of New Mexico were refused (let us say scorned) by the Park Service.

For at least three decades there has been a trend by some Federal courts and bureaus to diminish the powers of the states in both their social and commercial behavior, as well as advocating and attempting to assume jurisdiction of all resources on public lands, especially wildlife. Sadly enough this has come about in some instances because the states have sometimes failed to live up to their responsibilities, to pass constructive legislation and to make compacts among themselves.

In the case of water pollution many an honest "state-righter" has been forced to seek improvements through application of uniform laws passed by the U. S. Congress; but any failures on the part of the states in eliminating pollution has no bearing on the case in question. There is a growing arrogance that only the people representing the Federal govenment have the intelligence, integrity and know-how to steer the resource ship. They believe they are among the few of God's anointed that can plan and make no mistakes, that they alone sit on the right hand of Jehovah.

A Federal District Court judge recently ruled in favor of New Mexico, but the decision is expected to be appealed. The National Wildlife Federation has announced that it will intervene as a "friend of the court," if necessary, in this current court case to decide legal ownership of wildlife.

Thomas L. Kimball, Executive Director of the National Wildlife Federation has stated: "If the Federal government's claim to legal jurisdiction over resident game and fish prevails, then private landowners could conceivably claim a similar right—such a doctrine would lead to complete chaos and confusion in the protection, management and restoration of America's fish and wildlife resources."

History records a long discussion of these matters. A convention to protect the fur seal on the high seas was called in 1911, and a treaty was signed by the United States, Great Britain, Japan and Russia. Similar treaties have followed, some of them rather recently, to provide protection for whales, halibut, salmon and other deep sea life.

An early U. S. Supreme Court case—Lacoste vs. Department of Conservation of the State of Louisiana, states: "By right of ownership, and in the exercise of police powers, a state may regulate the taking of wild animals within its borders, their subsequent use, and the property rights that may be acquired in them."

One of the first, if not the first, attempts by the Federal government to control wildlife within the boundaries of the U. S. was the passage of the Weeks-McLean Act of 1913. This Act declared: "All migratory game and insectivorous birds to be within the custody and protection of the government of the United States and forbade their destruction or capture contrary to regulations prescribed by the Secretary of Agriculture." This Act was declared unconstitutional by the U. S. Supreme Court as an invasion of the rights of the States.

As a result there followed the Convention of 1916 between the United States and Great Britain providing for the protection by the U. S. and Canada of migratory game birds, migratory insectivorous and migratory non-game birds. This treaty was carried out as in the case of oceanic fishing under the powers of the U. S. Constitution.

IN 1918, with the Treaty duly signed, the U. S. Congress proceeded to pass the Migratory Bird Treaty Act which authorized the Secretary of Agriculture, subject to the approval of the President, to promulgate regulations for the protection of all migratory birds covered by the Convention. Mexico signed a similar treaty in 1936.

Again the authority of the Federal government was challenged in the case of Missouri vs. Holland but, on the basis of the Constitutional Treaty powers, the U. S. Supreme Court confirmed the Migratory Bird Treaty Act of 1918.

In 1919 a movement was started by H. S. Graves, Chief of the U. S. Forest Service, along with F. E. Olmsted and Gifford Pinchot, to bring about, under the jurisdiction of the Federal government, the control of timber cutting on private lands. This led to a bitter fight, with forest industry on one side and the Forest Service and some private backers on the other. The proposal never became law, and there were members of the Forest Service who were not in sympathy with the idea. This caused some deep rifts within the Service. However, it ultimately brought about vastly better forest fire protection through the Clark-McNary Act and improved forest management as a result thereof. Although this incident is not closely allied with game management, it shows a trend of thinking that has periodically cropped up.

Hunt vs United States (1928), more commonly known as the Kiabab Case, involved the killing of deer by the Forest Service on the Grand Canyon National Forest Game Preserve which in reality was an overlay of the Kiabab National Forest. The issue was the destruction of the natural reproduction and forage plants as well as thousands of deer dying from insufficient forage. Deer were ordered killed under the direction of the Secretary of Agriculture, and Arizona officials threatened the arrest and prosecution of anyone killing, possessing or transporting deer. Three persons were arrested. In a suit by the Federal government the lower court found in favor of the Secretary of Agriculture. In an appeal, the U. S. Supreme Court in essence ruled that the Federal government could protect its own property from destructive overbrowsing by deer, but it did not say that there could be a general open season to licensed hunters to kill deer in violation of the State's laws. This meant that only regular employees of the government could participate in the killing; and also that deer shipped beyond the boundaries of the refuge should be marked so as to show that they had been killed under the authority of the U. S. officials within the limits of the reserve.

To some people all this may sound like legal and technical niceties but, nevertheless, it preserved the integrity of the state in the general management of game, the issuance of hunting licenses, etc. Crop and tree damage still is something of a moot question even at the state level on private lands. Some states pay for crop damage by wildlife, and some state courts have gone so far as to say that when there is no recourse the landowner can protect his property from wildlife damage.

Nor can the federal government gain much comfort from citing the Pisgah National Forest Case in North Carolina. When that National Forest was established, the State of North Carolina ceded all rights and title to the land, as well as complete jurisdiction of the wildlife to the Federal government.

Presumably on the basis of the Court's decision in the Pisgah case and during the general era of expanding government activity along with the CCC

camps, the then Secretary of Agriculture, Henry Wallace, attempted to impose similar regulations on all national forests under general order G-20-A. This caused a general uprising among the states and was one of the main reasons which caused the states to forget petty differences and combine their strength in the International Association of Game, Fish and Conservation Commissioners. Seth Gordon, then President of the International led the fight, and a good one it was.

The order was subsequently withdrawn and for the time being Federal powers, so far as an imposition of the state's rights to manage their own wildlife resources, was dropped. But it has never completely died.

AS our civilization in these United States becomes more complex and beset with new and vexing problems, the individual states face new challenges. If they are to retain their traditional and legal prerogatives, they must accept their responsibilities on a high plane of integrity so as not to be overthrown by impatient minorities who view Federal sovereignty as the only classical virtue.

In the matter of protecting natural resources no one would be foolish enough to argue that the states have advanced to a Utopian idealism with uniform objectivity. Nor can any historical documentation give the Federal government any special badge of merit.

The Atlantic seaboard states were nearly 125 years old when New Mexico and Arizona came into statehood as frontier territories. The resources stored up through eons of time had made possible the heroic age of exploration. Later they were responsible for the creation of the greatest free nation on earth. Wildlife was elemental to survival for food and clothing. Even after the era of exploration, hunting was still as much a part of frontier life as was tilling the soil or plying a trade. Yet throughout all that time of pioneering and conquest, the collective ownership of wildlife by each state was never questioned. The Colonials and the westering migrants wanted no part of the European tradition where a man could be hung for poaching a rabbit.

When the time arrived for the protection of game through the enactment of laws, they were fiercely adamant that all game come under the collective ownership of the states. Colonial laws prior to the adoption of the Constitution attest to this tenant.

As the great western migration advanced and new states were created, laws were enacted to give protection to the diminishing game species. The fact that these laws were often on the liberal side or loosely drawn and often poorly enforced does not negate the recognition of state ownership. Even when land was homesteaded or purchased after the creation of a state, the implied covenant of state ownership of all game on all land went with the title. It didn't have to be written into the deed because the State's laws already covered the issue. Rudimentary state laws did not save the passenger pigeon nor did any Federal Laws save the bison.

Now the traditional and legally accepted authority of each state to protect and manage its resident game is being challenged by the Department of Interior.

The entire and laborious system of state conservation agencies has been built block by block both on tradition and legal documentation as to the ownership and control of these resident species. Even the control of migratory waterfowl by the Federal government was held unconstitutional until covered by an International Treaty with Great Britain and later with Mexico.

Successively the states adopted various forms of licenses as a practical means of raising funds to manage wildlife. There were few if any bleeding hearts around during all those pioneering efforts to lobby for funds from the general coffers to do the job. The hunter wanted to hunt and the fisherman wanted to fish, and they were willing to spend money for the perpetuation of wildlife. They have always had their differences as to what constitutes management; some are conservative, others liberal, some greedy. But most important—despite imperfections at the state level, many wildlife species have been saved from extinction and a few have increased; and most of this happened when there was no Federal machinery to save any wildlife.

NOW comes a generation of "Johnny-Come-Lately" preservationists who claim that the old system was all wrong; that hunting implies a low mentality and greed, and total lack of esthetics which is repulsive to their sensitivities; that the states are money hungry, muddlers and imcompetent.

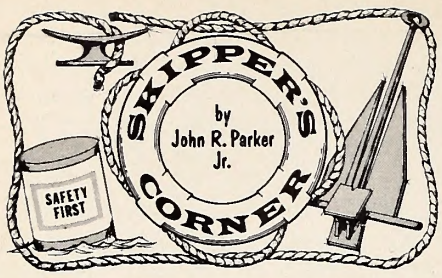
But they were scarce as hen's teeth when the liberal-minded mass of the great unwashed were attempting to devise some means of wildlife conservation. And down through the years it has been amply proven that this mill-run of common citizenry can at times be too conservative. Sportsmen oft times have preservation theories which run counter clock-wise to sound game management. I am inclined to believe that the preservationists would be just as guilty of allowing forest damage by deer and other big game species as would the hunters.

But the end result of Federal authority over wildlife on public lands follows with the next step of ownership of game by private individuals—farmers, timber owners, etc.—on their own holdings. These land owners could then have game or no game and set seasons according to their own whims. As it stands now they have the absolute right to control trespass—which they should have—and in most states there are laws to provide for damage claims, but the sovereign state still holds title to the game.

If the present crop of idealists want they can easily wreck the budget of every state conservation agency in the nation. They have advanced no alternatives for resource financing by the states, nor sensible enforcement. Damage under this scheme would be taken care of as landowners saw fit and too often to the detriment of wildlife.

Eternal vigilance is the price the states must pay for their right to manage resources. But to say that the Federal government by wishful thinking is omnipotent and that its own history of resource management is above reproach is simply the pot calling the kettle black.

Reprinted from "Conservation News" an educational service of the National Wildlife Federation.




IN so many areas of life, we often say that it's the little things that count. This is true in boating too. It's those little things that can put your craft on the rocks. The proper maintenance of same can keep you out of trouble.

An example of the little things comes to mind. Occasionally there turns up in the accident reports an account of how a broken steering cable caused a collision. With this in mind, I recently re-examined the steering cable of my personal craft. At first glance, the approximately 50 feet of cable looked to be in good shape. The cable covering was smooth, clear and still new looking, after two years of use. No rust spots showed through. But a look under the various rollers revealed cracks in the cable covering which resulted in cable rust. Here, I thought, was an accident on the way to happen. A parted cable and off you go into who knows what.

The cable system of steering has served many years but because of this type of problem many manufacturers are turning to the more positive mechanical steering.

If you need to replace the cable—be sure to use a quality brand. Make sure the cable is properly placed on the drum and properly adjusted, not too tight not too loose: The boat industry recommends two-inch pulleys. A smaller pulley (or too much tension) may shorten cable life. Also, it is recommended that pulleys be bolted not screwed in place.

### Safe Boat Course

It is our policy to publicize the information on safe boating courses offered by the U. S. Power Squadron, U. S. Coast Guard Auxiliary, etc.

The Kinston Power Squadron starts its fall course on September 3 at 7:30 p.m. Meetings are to be held at Stalling Air Base in the "Power Squadron Building". Some of you may be reading this notice a day or so late but I feel certain you can get in on the second session. Call W. T. Casey, Kinston, phone number JA3-3107, for details.

### From The Records

Figures on boating law violations may offer the dullest type of reading but I have a feeling a goodly percentage of you would occasionally like to know what type of trouble your fellow boater is having. Such information may, in fact, ring a small bell and prompt you to check equipment, etc. June records are as good as any to examine. So for what it's worth, here is what the boating law enforcement officers found for that month.

| Type of Violation | Number |
|---|---|
| Operating without registration | 45 |
| Fail to display number | 25 |
| Improper display of number | 7 |
| Fail to carry or present certificate | 20 |
| Fail to complete statement of transfer | 6 |
| Miscellaneous numbering violation | 4 |
| Lighting violation | 32 |
| Lifesaving devices violation | 192 |
| Warning device violation | 17 |
| Fire extinguishing violation | 67 |
| Fire prevention equipment violation | 15 |
| Miscellaneous equipment violation | 15 |
| Skiing violation | 9 |
| Miscellaneous operating violation | 28 |
| Other violations | 5 |

### Oil Pollution

It is unlikely that any of you reading this are guilty of oil pollution or are potential polluters. But those of you boating about the coastal waters of the state may have the chance to observe same and make it known to the U. S. Coast Guard. And you may just be interested in laws affecting this problem. After all, boaters should be interested in clear water more so than the average citizen. The following is from the Local Notice To Mariners issued by the Fifth Coast Guard District.

"Federal Acts prohibit the disposal or overflow of any Oil, Oily Bilge, Debris, Garbage and Refuse of any kind into the tidal waters of the Harbors of Hampton Roads, Baltimore, and the Chesapeake Bay and its tributary waters, and so much of the Atlantic Ocean as lies within the jurisdiction of the United States and its tributaries. The Federal Acts also prohibit the discharge of oil or oily water into the sea within 50 miles of the nearest land of the United States.

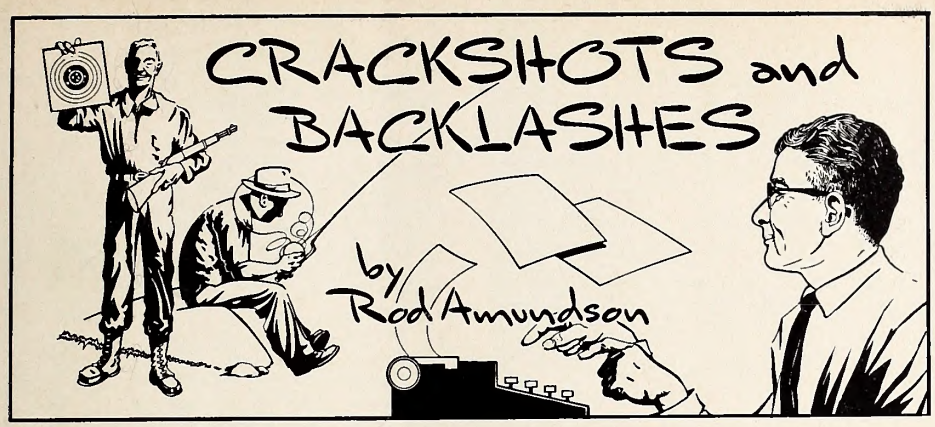
Any person or persons violating these regulations may be subjected to a fine of not more than $2,500 or not more than one year imprisonment, or both.

There are three Federal Acts that are basically water pollution laws that are subject to enforce-

• SKIPPER continued on page 22

**Littering of any kind is unsightly. Take time to come ashore and use trash containers properly. Help keep water clean.**

EVINRUDE MOTORS PHOTO




### Fish-On-Fish

What may well be the biggest North Carolina best-seller since Tom Wolfe gave our state and the world *"Look Homeward Angel"* was published this week by the Wildlife Resources Commission.

This literary triumph is entitled *A Catalogue Of The Inland Fishing Waters In North Carolina* and when anglers find out about it we'll bet the edition goes through at least ten printings.

Appropriately enough, the author of *Inland Fishing Waters* is Frederick F. Fish and if he never writes another line he'll end up as famous as Isaac Walton in this State.

The mind boggles, or perhaps we should say the creel explodes with delight at what Mr. Fish has done for fishing.

*Inland Fishing Waters* is a catalogue of every known freshwater stream and lake of 25-surface acres or more in North Carolina where public angling is permitted.

Not only this but Fish-On-Fish tells you how to get to the fishing holes, how big and accessible they are, how to fish, what to fish for and then with a cool courage only another angler can appreciate Fish tells you just exactly what kind of luck you may expect to have. That man ought to get a medal.

*Inland Fishing Waters* is a hefty volume, 300-pages long, and it's doubly rewarding because it proves beyond doubt that when bureaucracy really works it's the berries. No angler, after seeing such a work of near-genius, will ever again mind buying a fishing license when he considers his tax dollars helped pay for this Wildlife Resources project.

The history of the endeavor that resulted in the book goes back 10 years when Wildlife Resources modestly started an inventory of every lake and stream on all of the 25-watersheds in North Carolina.

As the project grew it became more ambitious and finally each of the thousands of items of freshwater fishing information was programmed so computers could take over the tabulating and almost instantly update the angling lore.

A typical entry in the catalogue reads like this:

ALBEMARLE SOUND
LITTLE FLATTY CREEK

Tributary to Pasquotank River at river mile 2.8 Mouth to origin: 3.0 miles; av. width 300'. Ecological classification: tidal. Statewide creel census data summary: 4 contacts; 0.32 fish/hour; 100% largemouth. Fishing from boat recommended. Access from Wildlife Resources Commission boating access area on Big Flatty Creek at end of State Secondary Road-1107 (Pasquotank County). Excellent fishing for largemouth, bluegill, redbreast sunfish, and white perch.

This goes on for over 300-pages, with more than 3,000 angling locations inventoried, chapter and verse. If you can't catch fish with that kind of information, you'd better switch to worms.

The Statewide Creel Census referred to in the typical listing above is the Wildlife Resources Commission yardstick for fisherman's luck. A certain wry humor gleams through Mr. Fish's prose when he explains the creel census:

"The number of contacts stated with these data (the creel census) represents the number of creels taken from this water that were examined during the Census. The greater the number of contacts, the more trustworthy are the data. Also given is a catch rate expressed in terms of the average number of fish caught from this water for each hour of fishing effort. The average catch rate is the best, albeit by no means an eminently satisfactory single quantitative answer to the question "how's fishing"? The catch rate must be considered, to some degree at least, in terms of fish being caught. The largemouth bass fisherman normally does not expect to catch very many fish in the course of a day—in fact if he can average one bass caught for every four hours of fishing he is doing very well. The crappie fisherman, on the other hand, generally gives up and goes home if he isn't landing two or three fish every hour . . . "

Mr. Fish as an undaunted Prince Of The Empty Creel, we can only say your monumental work establishes you as a scholar and a gentlemen. Well done.

Mason Peters
"The Daily Advance"
Elizabeth City, N. C.

The publication described here has been distributed to all high school and college libraries, and all municipal and regional libraries throughout the state. We hope that you will use this publication from these sources since no copies are available from the Wildlife Commission.

### More Help For Wood Ducks

DEAR SIR: I thought maybe you would like to know what our Martin County 4-H Wildlife and Conservation Club, Williamston Division, has done.

The Club has built and put up four wood duck boxes on our seven-acre swamp study area. These boxes were set up to see if the ducks would use them. For their first year even with plenty of natural hollows, we had one box used by wood ducks.

We will build about 15 boxes and put them up. Thank you for sending us the plans for the boxes. We have all taken an interest in waterfowl.

FRED HASKINS, WILLIAMSTON

### Wild Ponies

DEAR SIR:

I would like to know if the state of North Carolina has any plans to protect the wild ponies on the Outer Banks.

## KNOW YOUR PROTECTOR

John B. Willis

Wildlife Protector John B. Willis, stationed at New Bern, Craven County, was born June 25, 1924, in Beaufort County. He is the son of Mrs. Beula Willis Hardison of Arapahoe, North Carolina, and the late Mr. Eugene Z. Willis. John received his high school education in the Craven County school system and the Cherry Point Apprentice School. Prior to employment with the North Carolina Wildlife Resources Commission, he was employed by the Pamlico County Health Department.

John completed the Basic Recruit School for wildlife protectors at the Institute of Government in Chapel Hill, North Carolina in 1960. He was employed as a Wildlife Protector Trainee in May of 1961 and stationed in Oriental. In June of 1961, he was appointed Wildlife Protector and transferred to New Bern. Since his initial employment, John has completed five in-service training schools.

Mr. Willis is a National Rifle Association Hunter Safety Instructor; member of the Southeastern Association of Game and Fish Commissioners, Law Enforcement Section; forest and conservation merit badge counselor for Craven County Boy Scout troops; member of Grantham Masonic Lodge No. 725 in New Bern, North Carolina; and a member of the Ancient and Accepted Scottish Rite of Freemasonry, New Bern Consistory No. 3.

Mr. Willis is married to the former Elizabeth Fulcher of Oriental, North Carolina, and they have three children: Jean, age 19; Donna, age 16; and John Jr., age 14. The Willis family attends the Pleasant Acres Baptist Church in New Bern.

## DIVISION ENFORCEMENT RECORD FOR JULY, 1968

| | |
|---|---|
| **HUNTING & FISHING** | |
| Persons checked | 33,941 |
| Total prosecutions | 1,047 |
| Total convictions | 1,031 |
| Total cases not guilty | 5 |
| Total cases nol prossed | 7 |
| Total cases dismissed | 4 |
| Total fines collected | $ 2,849.20 |
| Total costs collected | $10,451.55 |
| **BOATING** | |
| Persons checked | 16,307 |
| Total prosecutions | 624 |
| Total convictions | 605 |
| Total cases not guilty | 5 |
| Total cases nol prossed | 14 |
| Total cases dismissed | 0 |
| Total fines collected | $ 1,225.85 |
| Total costs collected | $ 6,040.85 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

These ponies have been in North Carolina for decades running wild on the Outer Banks and should be protected as are the wild ponies in Chincoteague, Virginia, in the Assateague Island National Seashore in Maryland and Virginia.

The National Park Service should protect and preserve the wild ponies in the Cape Lookout National Seashore, and should not remove them as is now planned. I would like to ask that you do everything possible to get the North Carolina Wildlife Resources Commission to protect and preserve these wild ponies in the wild state.

TOMMY LIPREY
JONESVILLE, SOUTH CAROLINA

Please see "The Wild Ponies of Ocracoke Island" in July, 1968 WILDLIFE.—Editor

• SKIPPER continued from page 20

ment by various Federal Agencies. These are discussed below:

A. Oil pollution Act, 1961, as amended (Titles 33, **U. S. Code**, Section 1001-1015)
   1. This law concerns the pollution of the sea by oil within 50 miles of the nearest land of the United States.

B. Oil Pollution Act, 1924, as amended (Title 33, **U. S. Code**, Section 433)
   1. This law prohibits the discharge of oil by ships and boats into the navigable waters of the United States.

C. The Refuse Act of 1899 (Title 33, **U. S. Code**, Section 407)
   1. This law prohibits the depositing of "any refuse matter of any kind or description" in the navigable waters and includes oil or any kind of petroleum product.

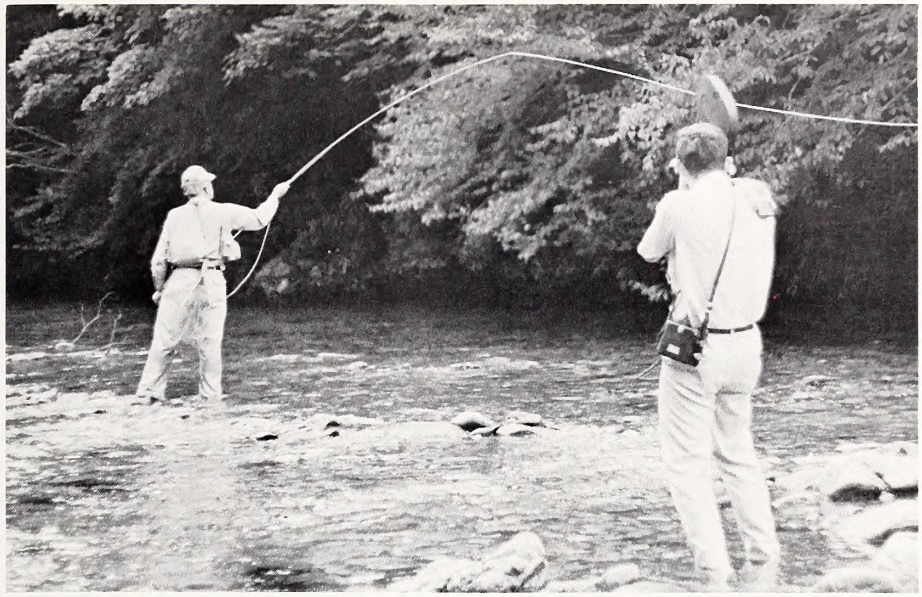
In recent weeks (issued July 7) there has been an alarming and unwelcome increase in the number and frequency of cases of pollution of the waters of Maryland, Virginia, and North Carolina by oil. The discharge of this oil in the territorial waters of the United States is of mounting concern to the residents and users of beach areas and shellfish and fishing interests on the seacoasts and harbors. The cooperation of all mariners and operators of vessels, pleasure and commercial, is requested to remedy this condition. Mariners are cautioned that U. S. Coast Guard and U. S. Army Corps of Engineers vessels and aircraft are patroling these waters to detect violators.

In the interest of maintaining clean water for all it is requested that all persons exercise the utmost caution to prevent water pollution, and if any oil pollution is detected to immediately notify the

nearest Coast Guard Unit so that appropriate action can be taken to safeguard life and property."

## HIGH TIDES FOR SOUTHPORT, N. C.

| DATE | TIDE (in feet) | TIME |
|---|---|---|
| Sept. 2 | 4.9 | 4:18 PM |
| 3 | 5.1 | 5:18 PM |
| 4 | 5.2 | 6:18 PM |
| 5 | 5.2 | 7:00 PM |
| 6 | 5.1 | 7:48 PM |
| 20 | 4.9 | 6:18 PM |
| 21 | 5.0 | 7:00 PM |
| 23 | 5.1 | 8:13 AM |
| 24 | 5.3 | 9:00 AM |
| 25 | 5.3 | 9:48 AM |
| 26 | 5.2 | 10:42 AM |
| 27 | 5.1 | 11:42 AM |
| 28 | 4.9 | 12:42 PM |
| Oct. 2 | 4.9 | 5:00 PM |
| 3 | 4.9 | 5:54 PM |
| 4 | 4.9 | 6:36 PM |
| 5 | 4.9 | 6:54 AM |
| 7 | 5.0 | 8:18 AM |
| 8 | 4.9 | 8:54 AM |
| 21 | 5.3 | 7:00 AM |
| 22 | 5.6 | 7:48 AM |
| 23 | 5.7 | 8:42 AM |
| 24 | 5.6 | 9:36 AM |
| 25 | 5.5 | 10:30 AM |
| 26 | 5.2 | 11:30 AM |
| Nov. 4 | 5.0 | 7:12 AM |
| 5 | 5.0 | 7:48 AM |
| 6 | 4.9 | 8:24 AM |
| 18 | 5.1 | 5:48 AM |
| 19 | 5.4 | 6:42 AM |
| 20 | 5.6 | 7:36 AM |
| 21 | 5.7 | 8:24 AM |
| 22 | 5.6 | 9:18 AM |
| 23 | 5.4 | 10:18 AM |



PHOTOS BY JOHN R. PARKER, JR.

"Wildlife" Television Program Back This Fall

Camerman Ted Dossett films a trout fishing sequence for "Wildlife In North Carolina." Commission Fisheries Supervisor and "alligator specialist," Darrell Louder, prepares to release this seven-footer captured for the T.V. camera. The first program starts September 20 at 7:00 p.m. over the WUNC-TV network. Watch your local listings for "Wildlife" on a station near you.

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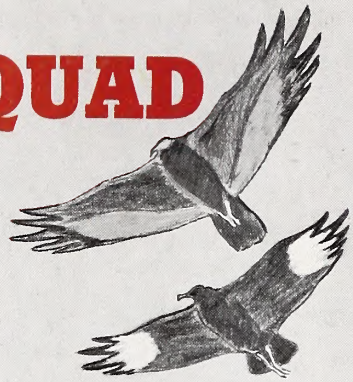
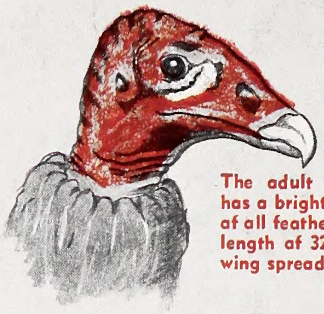
# NATURE'S CLEANUP SQUAD



Both the turkey vulture (top), and the black vulture are able fliers. Note the black vulture's whitish patches near the wing tips, and its square tail.



The adult turkey vulture has a bright red head bare of all feathers. It reaches a length of 32 inches with a wing spread of six feet.

No vulture cleans up carrion more efficiently than the black vulture. It has a naked black or gray head and a length of up to 27 inches. Both species will sometimes kill small game, but they are far more beneficial as Nature's sanitary engineers.

The black vulture builds no nest at all, and the turkey vulture only occasionally a scanty mat of rotted wood. There are usually two young per season. The eggs of both species are blotched with dark brown.

The young turkey vultures are fed by both parents by means of regurgitation. This homely infant will be able to fly at about 65 days of age.

WADE WALKER

LITHO BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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# Wildlife IN NORTH CAROLINA

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Raleigh
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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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# Wildlife IN NORTH CAROLINA

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VOL. XXXII, NO. 10 OCTOBER, 1968

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EDITORIAL STAFF

ROD AMUNDSON - - - - - - - - - EDITOR
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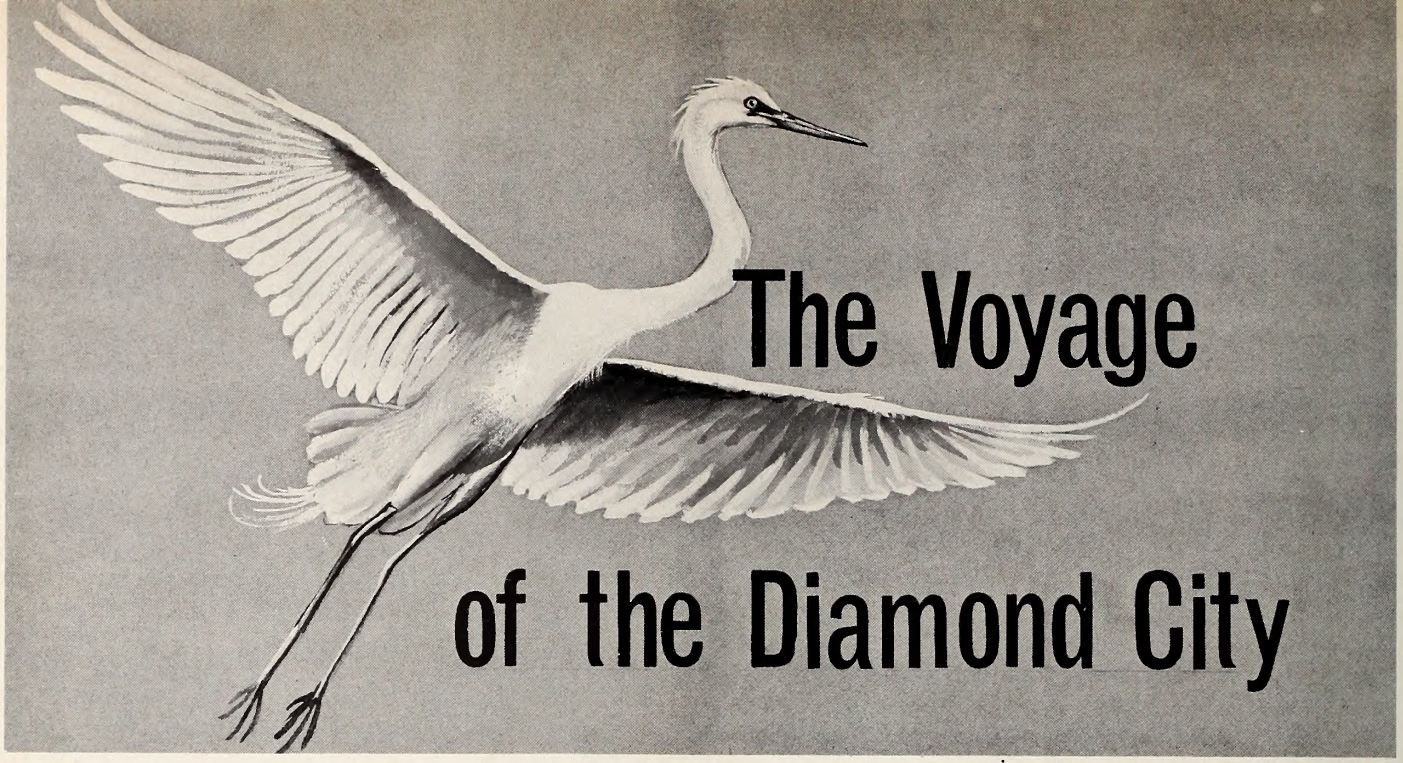
LUTHER PARTIN - - WRITER-PHOTOGRAPHER
JOHN PARKER - - - - - OUTDOOR SAFETY
TOM JACKSON - - WRITER-PHOTOGRAPHER

The debate whether the European wild boar is fearless or just plain stupid will very likely rage for ages to come. But there is little doubt that the wild boar doesn't like people. And he is well equipped to make his dislikes pretty well known. A big one often tops 300 pounds, and the two pair of curved tusks are vicious weapons. Many a valiant hound has met its end in a fight with a mad boar. Painting by Wade Walker.

*Osprey*

This photograph of an osprey is the first place winner in the 1968 WILDLIFE IN NORTH CAROLINA Photo Contest. Madeline Teachout of Havelock took the photo in Craven County with a Pentex Spotmatic camera on Kodak Tri-X film exposed 1/250 at f.8. Additional winning photos are found on pages 13-15.



# The Voyage of the Diamond City

**by Steve Price**
Photos by the Author

MOREHEAD City boat pilot Captain Joe Bailey has found a way to put his 45-foot charter boat to good use during the off season. He uses it to go on bird watching cruises.

Bailey spends each Saturday in October taking bird watchers on 20-mile trips up North Carolina's Intracoastal Waterway, from Morehead to Oriental and back.

The captain, son of the late North Carolina senator J. W. Bailey, has been in the boat business for 35 of his 45 years. In the summer he uses his boat, the 30-passenger "Diamond City," as the daily ferry from Harker's Island to Cape Lookout. The bird watching cruises are unique in the state, and perhaps in the nation.

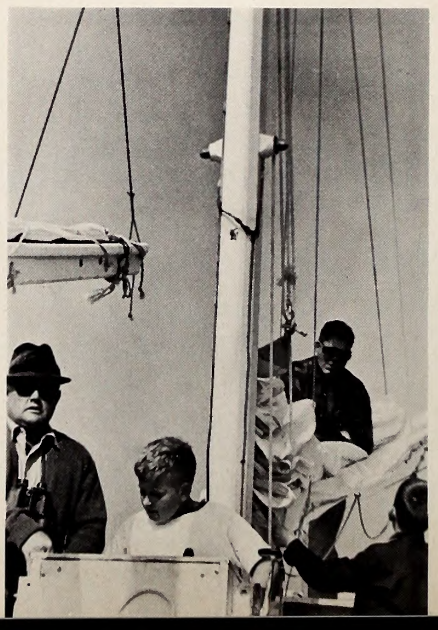
"I just wanted to find more ways to use this boat," Bailey explains. "I tried the idea once in 1966 and had such good reception I decided to do it again. All of my cruises were filled this fall too, so I plan to make this an annual event."

The cruises are held each Saturday in October. For $5 the passenger receives a 20-mile ride up the Waterway to spot birds, a two-hour visit in the quaint little fishing village of Oriental and sailing in the Neuse River during the return trip. The expeditions leave Capt. Bill's Restaurant at 6:30 a.m., just before dawn, and arrive back around 4 p.m.

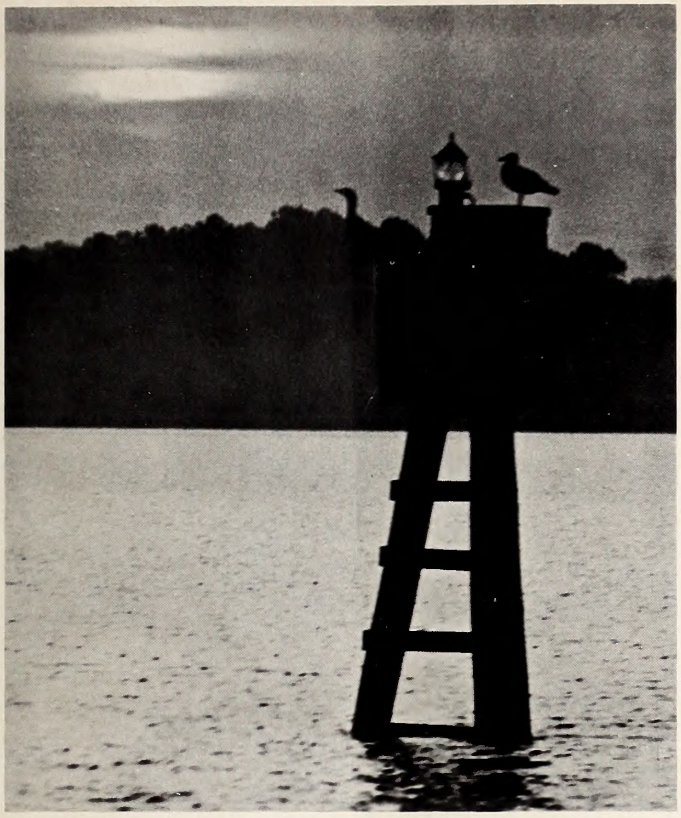
Warm clothing is a must on the trips, for until the sun rises, the salt air is quite cold. Later in the day, however, it is often warm enough for passengers to sun themselves on the "Diamond City's" decks.

"I don't guarantee we'll see any birds," quips Bailey at the start of his cruises. "And if we do, I probably won't be able to identify them. All I know is if it has feathers and flies, then it's a bird."

The chief bird spotter of the trips is Eugene Pond, 41, a retired Chief in the Coast Guard and present world Class B skeet shooting champion.



**At far left. Eugene Pond points out a bird to Capt. Bailey. Eugene Pond, Jr., takes over the wheel while Bailey lowers the sail of the Diamond City.**



**A cormorant and a gull share a marker buoy in the Inland Waterway as the morning sun pierces the cloud cover.**

**A jacket or sweater often feels good until the autumn sun gets high. These passengers relax on deck.**

"He's had a lot of experience in bird watching," explains the captain. "He may not be able to identify all of the birds, but he'll sure see them. "I don't know how he does it. All I can identify is crows."

During the trip, Pond chats with passsengers, explaining the differences between egrets and ibises or why certain birds winter along the Waterway. As he points out the birds, Bailey steers the boat in for closer looks.

The birds of the Intracoastal Waterway include blue herons, kingfishers, ospreys, snowy egrets, glossy ibises, herring and black-backed gulls and many others.

Herons often watch unconcerned as the "Diamond City" glides past their perches in rotting shore pines or snagged driftwood logs, offering good shots for photographers.

Long telephoto lenses are recommended for nature photographers on the trip, in order to capture the close details of the many birds seen. Medium speed color and black and white flims will work fine to record the beauty of the Inland Waterway and some may prefer to use filters to cut down on sun and water glare during the afternoon hours. Strong binoculars are also a must to take along.

"The weather here in the fall is usually pretty good for bird watching if there isn't a hurricane around," Bailey points out. "We catch the birds during their fall migrations."

At about 10:30 a.m. the party arrives in Oriental, on the shore of the Neuse River. Passengers are able to eat a hearty meal in the town's restaurant, and then wander about to talk with fishermen or take pictures. The Oriental harbor is always filled with a colorful assortment of fishing vessels, and the town's fishermen are always willing to talk of past adventures.

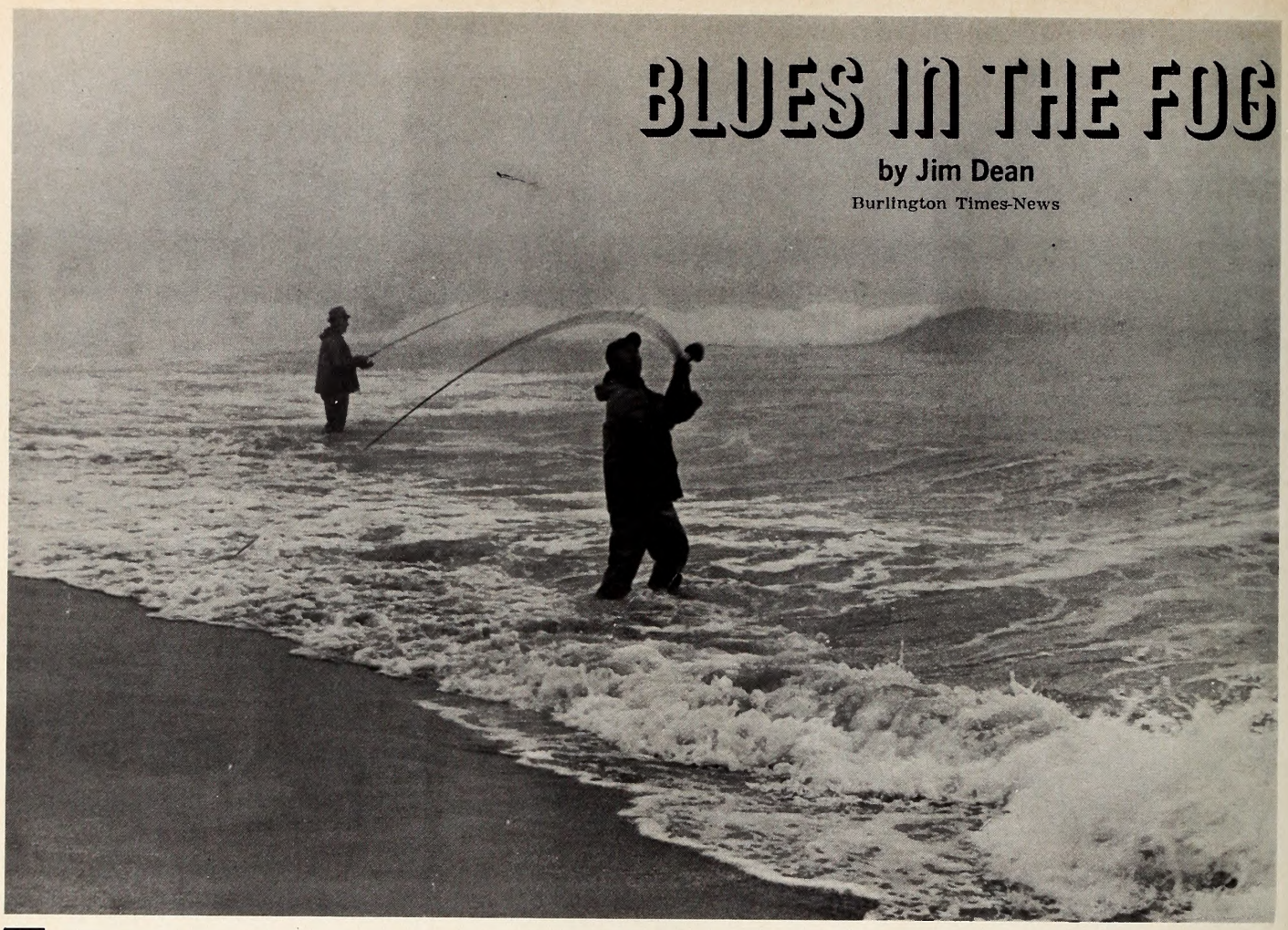
On the return trip Bailey often cuts off the two British Rover engines powering the "Diamond City" and hoists sail for an hour or two of leisurely sailing in the Neuse River. If the wind is strong, the twin-masted ship can make better time under sail than under motor power.

Few passengers come away disappointed from one of Bailey's cruises. His bird watchers have come from all over the state and many from as far away as Georgia to take the inexpensive trip.

For bird watchers and camera enthusiasts the cruise is a chance to spend a full day viewing and photographing many colorful and unusual species of birds, and for Bailey, it is one way to keep busy during the off-season. ◆

# BLUES IN THE FOG

by Jim Dean
Burlington Times-News



PHOTOS BY JIM DEAN

TWO small red lights, the glow from a pipe and a cigarette, alternately lit the dark interior of the station-wagon.

Moisture condensed on the windows and ran down in trickles as my wife Diane and I waited for the first light of false dawn that might touch off a run of bluefish. It was nearly 5 o'clock in the morning and the beach would have been light already had it not been for the thick fog that had moved in overnight and covered Bogue Banks. As we got out of the car and gathered up our tackle, droplets of water clung to our sweaters and matted our hair.

The muffled booming of the October surf was the only sound we could hear as we walked toward a misty glow of light that turned out to be one of the windows in the tackle shop on the pier.

Inside, the smell of hot coffee mingled with a swarm of wader-clad anglers as they laughed and told each other lies while waiting for the light.

"I tell you, we're going to get some fish today," chuckled one of the fishermen as he sipped a scalding paper cup of coffee and munched a soggy doughnut. "It's been too pretty, and that's why we haven't been catching anything, but if those blues don't come in with this fog, I'll eat my parka."

His mouldy, stained parka hung loosely from his shoulders, looking anything but appetizing. He had to be sure to make a bet like that. One of the anglers stepped outside and disappeared into the soup in a dozen steps. Shortly, he returned smiling.

"I think we'd better get down there on the surf," he announced. "I can see the water now, and I thought I saw some bait stirring."

THE tackle shop emptied quickly in a rattle of rods and laughter. Diane decided to try the pier, since she had no waders. "If they're in the surf, I may get a shot at them from the pier," she said.

Moments later, I stood in a long line of surfcasters and watched the water. One or two anglers were already casting, but they had only a general idea of where their heavy, forged spoons were landing because you couldn't see past the breakers. Most of the anglers were out of sight in the fog, and although we were standing within a few hundred feet of the pier, it was impossible to see more than a faint outline of the pilings. It was strange to see everything like a faded black and white photograph. Colors hardly registered at all in the misty grayness.

I stood in the edge of the surf with my feet sinking slowly in the sand with each wave, and lit a pipeful of damp tobacco. Now I could see beyond the breakers, and occasionally a dull, silvery shower of baitfish skittered

across the face of a milk-green wall of water. It was time.

I tossed the heavy spoon seaward through the gloom, and began winding as fast as possible, taking short steps backward to give the spoon extra speed. There was a jolting strike, and then a sudden slack. I reeled in quickly, and cast again. Another blue hit, and the stiff rod was suddenly limber under the throbbing of a well-hooked fish. Out of the corner of my eye, I could see the man next to me sliding a nice blue out of the surf. I hauled mine out and tossed him in the cooler. I could hear shouts up and down the line as other fishermen fought blues that weighed from one to three or more pounds.

Despite the cold, damp day, perspiration began to mix with the wetness of the fog on my forehead as I cast again and again. I paused to rest my wrist, and suddenly noticed that the excited shouts had tapered off. The swirls of bait had disappeared.

Ten minutes of action, and it was over.

"Try the pier, maybe they're in deeper water now," gasped an angler as he struggled out of the surf next to me. I joined the rush up the sand dune, and raced down the slippery pier to a spot behind the breakers where the sand bar ran parallel to the beach. A tight knot of fishermen, Diane among them, were bent over the rail like seasick landlubbers as they hauled the flitting spoons through the breaking suds behind the bar. Piles of flopping blues, some as big as Spanish mackerel, lay on the pier behind them, and at times, there were several blues in the air as the fishermen swung them high over the rail.

IT was frantic. Excited shouts rang out. One man kept saying, "how sweet it is," everytme a blue assaulted his lure.

"Here, get in here," cried an angler, motioning me into a tight spot along the rail. Two dozen lines stretched straight out from the pier, and yet, almost no one was getting tangled.

One angler watched in astonished respect as his rod bent into a tight curve, and the line was snatched from his reel in long, powerful jerks. Then the line went slack, cut by the chopping teeth of another blue.

"That had to be grandpa," sighed the disappointed angler. He didn't seem to mind the loss of a $2.50 lure.

The knot of fishermen moved up and down the rail, trying to intercept the blues as they fed first on one side of the bar, and then on the other. It was mostly guesswork. You couldn't see far enough in the fog to tell where the blues were feeding. There were short periods when only a couple of rods were bent with the weight of bluefish, and unsuccessful anglers watched the successful ones closely to duplicate the exact speed of retrieve.

Some men paused to smoke when the run slackened, and during one breather, I caught a glimpse of Diane as she tossed a fleeting smile at me in the middle of a cast.

The fog was still thick, even straight up overhead, and although the blues were not as thick as before, I figured they'd be back as long as the fog stayed. I relit my pipe and glanced at my watch. It was almost 11 o'clock. No wonder I was tired. We'd been casting steadily since 5:30.

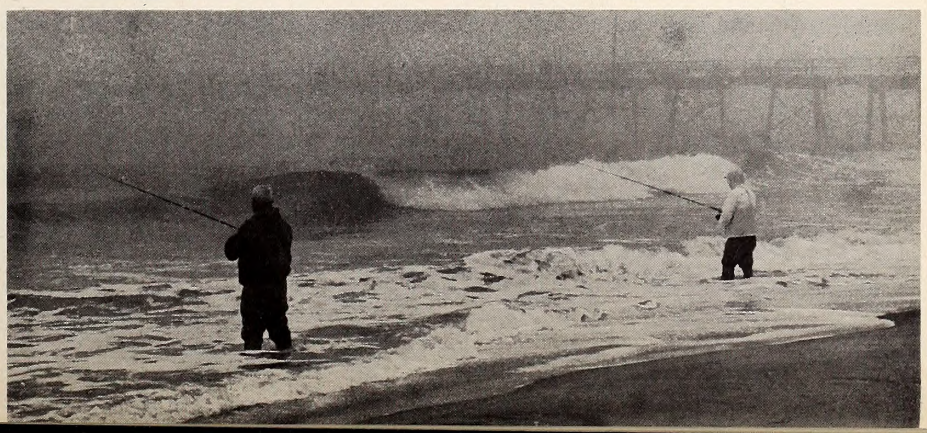
An angler in a dripping brown sweater borrowed a match, then stood puffing furiously to get his cigar going. "Ain't it great," he said. "I've never seen fog fail. It always gets 'em.

AFTER he left, I began to think about that. It was true. The fog did have something to do with the fishing. I could remember other times—on both fresh and salt water trips—when the fog had seemed to play an important role. I had once read that the quality of light was thought to have a lot to do with triggering feeding sprees. "A fish's eye," the article had stated, "is more effective in dim light than in bright light." It had something to do with the pupil, which was not supposed to be capable of expanding and contracting to fit existing light conditions like the pupil of a human eye. Maybe so. If fish liked dim light, that would explain a lot of fish and fishermen's habits, like the proven success of early morning and late afternoon fishing, not to mention the fact that fish often seem to bite best on cloudy or foggy days. My thoughts were interrupted by a flurry of action.

"They're back," cried Diane as she raced past me to an opening along the rail.

My chest was sore from leaning over the rail, and my wrists felt like rubber, but I scrambled back into the crowd and soon felt that familiar, soul-washing strike that meant another blue had made a mistake.

• **continued on page 27**



**A blue comes sailing through the fog on a dinner date, while other anglers lean over the rail, reeling furiously to coax a strike from the flashing fish. Below, Emerald Isle pier looms barely visible in the fog.**

# How Fish Reproduce PART 1

by Harry Cornell
Chief, Division of Inland Fisheries

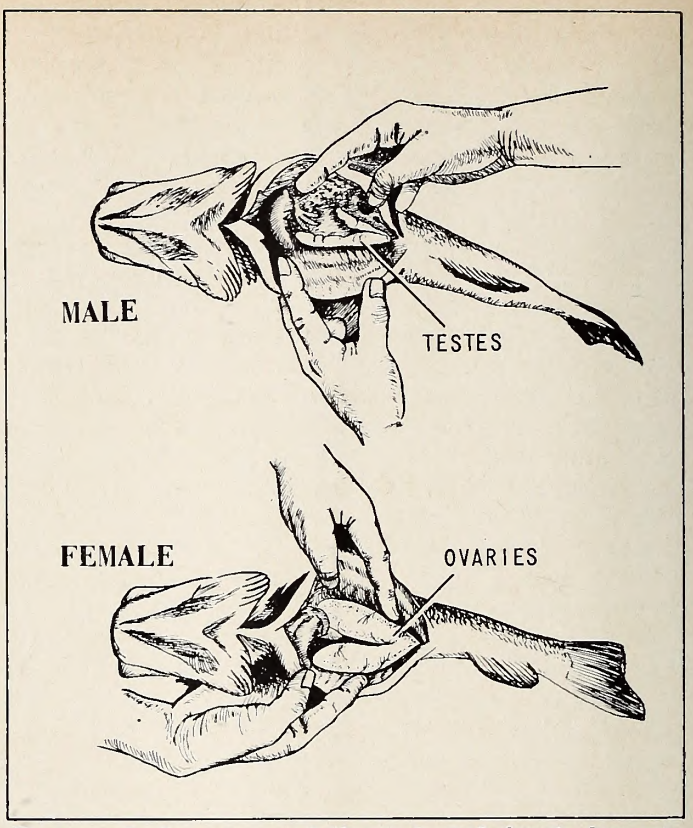
AMONG all of the vertebrate animals, the fundamental of reproduction is the same. An egg of the female is fertilized by a sperm from the male of the species, and from the union of that sperm and egg a new individual of the species develops. It makes no difference whether the animal is a bass or a boa constrictor, a crow or a cow. The fundamental principle is still the same and only the details are different. Nature has arranged for the various groups of animals to use different methods in getting the sperm and egg together, and the details of development of the individuals are different among the different groups. Even among the fishes, there are some differences in the details of reproduction.

Let's consider our friend, the largemouth bass, and see how he goes about the business of reproducing his kind. In the male are paired organs called testes which produce and store the milt. The milt is a white fluid containing thousands of individual sperms, each so small that it would have to be magnified in order to be seen. The comparable organs in the female are the ovaries. These contain several thousand yellowish eggs, each one being large enough to be easily identifiable.

As soon as the female has finished laying her eggs in the spring of the year, a new set of eggs for the following spring begins to develop. They grow rapidly during the summer, and by fall nearly have reached the size and development where they are ready to be laid. During the winter, when the water is cold, the bass eats very little and almost hibernates. At that time of the year the eggs do not develop but remain in a nearly ripe condition.

Some fishermen believe that bass spawn in both the spring and the fall. A reason for this is that during July and August they catch female bass with ovaries containing well-developed eggs. Actually, that is the time the eggs must develop in order to be ready for the spawning season the following spring. To visualize what these eggs look like, just think of the last time you had herring roe for breakfast. They were eggs from the ovary of a herring. When you eat caviar, you are eating the eggs of a sturgeon.

NOW the bass never has read a book which told him that he was supposed to spawn in April down along the coast, or in late May or early June in the mountains. Even if he knew it, he couldn't read a calendar, anyway. Just like a great many other things the fish does, his spawning is controlled by water temperature. When the water warms up to 61 or 62 degrees in the spring, the male largemouth begins to look for a suitable place to build a nest. He may try several spots before he finds one that suits him, but at about that temperature he will prepare a nest ready for spawning. He will use his fins to fan out a circular depression in the bottom. This may be up to one or two feet in diameter. The nest may be on sand, silt, hard mud, or sometimes even dead leaves. But a bass cannot build a nest in soft, loose silt. This fact accounts for the lack of bass in many of our rivers and lakes.




**The reproductive organs of the male and female bass are shown in this diagram, and are representative of similar structures in all fish.**

After the male has built his nest, he defends that area as his own territory and drives away any other males which may try to come near. As the water continues to get warmer and reaches the 66 to 70 degree temperature, the eggs of the female have developed to the point where they are ready to be laid. When she swims by and sees the prepared nest with the male on guard, she will swim in beside him and make herself at home. For a few hours, or as much as a few days, the two fish swim around in the vicintiy of the nest and appear to be getting acquainted. Their courtship consists of nudging each other with their noses and swimming back and forth across the nest.

As if by some prearranged signal, the two fish will settle down into the nest side by side. The female will extrude her eggs into the nest, and at the same moment the male will emit a cloud of milt which seems to cover them. The eggs are heavier

than water and sink to the bottom. Their coating is adhesive, and they stick to whatever they happen to touch first. The sperms in the milt are equipped with whip-like tails by means of which they move through the water and find the eggs. As each egg is united with a sperm, a new individual fish has been formed.

After the female has laid her eggs, and after they have been fertilized, she swims away and leaves the care of the young entirely to the male. For several days he stays over the nest, fanning the eggs with his fins so they will be continuously supplied with fresh water containing oxygen, and also to sweep away any silt which might accumulate on them and smother them. Then there are a great many enemies, including most other species of fish, which would like nothing better than to have a dinner of bass eggs. It keeps the male bass busy driving away other fish and keeping the eggs clean and aerated.

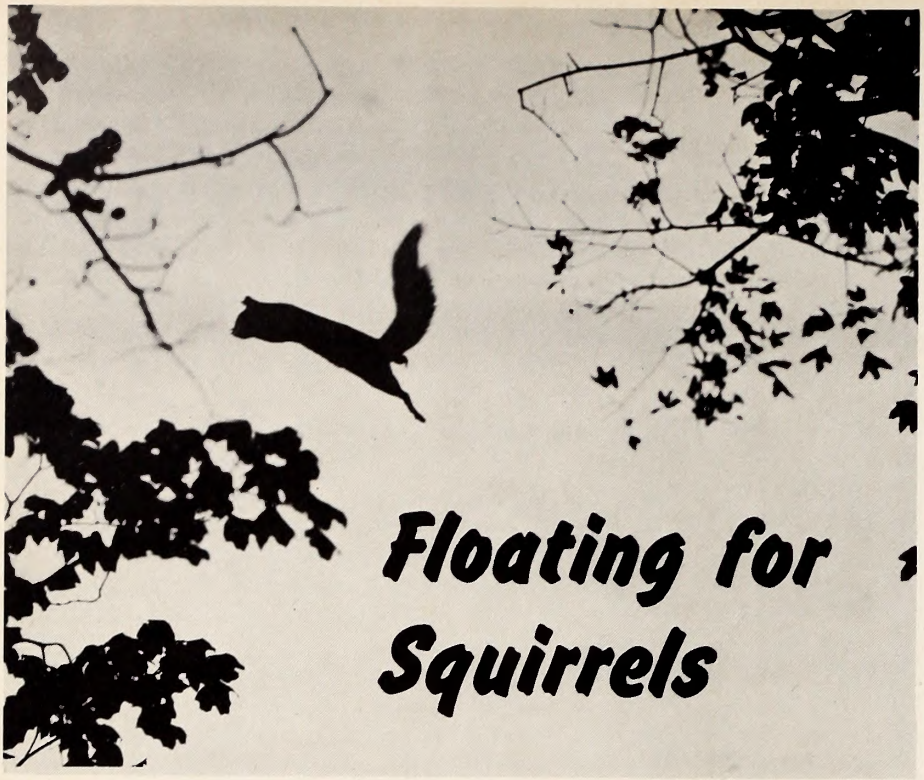
At this stage of their development, there are many hazards to which the eggs are exposed. A sudden drop in temperature of as little as 10 degrees can kill every egg in the nest. Of course, papa bass has no control of such a situation, and when the eggs are dead he simply swims away and leaves them. If there is a heavy rainstorm which brings a lot of silt into the water and turns it yellow, the mud settles on the eggs so fast that even the best efforts of the male bass cannot keep them clean. A layer of silt over the eggs shuts off the oxygen supply and they suffocate.

ANOTHER serious hazard is the change in water levels which often happens in power reservoirs. The largemouth usually builds his nest in water from one to six feet deep, with an average of about three feet. Daylight seems to be necessary in order for the eggs to develop, and the bass usually builds his nest deeper in clear water than in turbid water. If the water level falls during the time the eggs are in the nest, the male bass usually will stay with them tenaciously, even to the point where his dorsal fin is out of water. But if the water continues to go down, he finally has no choice but to swim away and leave the eggs to be exposed to the air and die.

The eggs hatch out in from five to eight or nine days, depending on the temperature of the water. If the water temperature happens to increase rapidly and become particularly high, the eggs may hatch in as little as three or four days. The length of time depends entirely on the temperature to which the eggs are exposed, but after several days the tiny bass break out of the eggs. At this stage they are called "sac fry" and are incapable of swimming. You can see a head and a tail, but the stomach is the "sac" which actually is the yolk of the egg from which they came. It is stored food material which they gradually absorb during the next week or ten days while they are in the nest. During that time they grow considerably, and when the yolk material is absorbed they must either begin feeding or starve to death. After the heavy yolk sac has been absorbed and they can swim away from the nest, they are ready to start looking for food and begin life as new individual largemouth bass. If everything has gone well and the spawning has been successful, there may be from two thousand to eight thousand young fish starting out from each nest. The largemouth fry, which they are now called, move away from the nest in a compact school in search of food, still guarded by the papa bass. He guards them closely for several days, but as they grow larger he leaves them more and more to their own devices until one day he goes away and does not bother to hunt them up again. And after that if he ever happens to see one of them, they are just another little fish so far as he is conconcerned, and he will gobble up one of them just as quickly as any other fish he might find.

NOW that we have seen how the largemouth bass gets its start in life, let's take a look at some of the other fish of the same family. We can see how the details of their reproduction compare with the largemouth. Many fishermen cannot tell the difference between a smallmouth and a largemouth bass. Since they are so similar, it is reasonable to expect that their spawning characteristics are also similar. The smallmouth always seems to prefer cold water, and he begins building his nest at about 58 degrees. Both the nest building and egg laying are done at slightly colder water temperatures than the largemouth. The smallmouth is more selective in the choice of a spawning site. His preference is for a gravel or pebbly sand bottom, and he will not build his nest on mud or silt. Also, he seems to use more care in selecting a location for his nest where direct wave action cannot harm it or where it will not be exposed to direct river currents. The actual spawning procedure is very similar to that of the largemouth, and the sac fry settle down among the rocks and gravel in the nest after they hatch. When they have absorbed the yolk sac and are ready to swim, the greatest difference is noticeable between the fry of the smallmouth and largemouth. Whereas the largemouth fry were nearly transparent at that stage, the smallmouth fry are as black as a drop of ink. Whey they finally come up from the nest and start out in life for themselves, they do not travel in a school as the largemouth fry did, but scatter individually to all parts of the water. They seem to entirely lack the schooling instinct which guided the baby largemouth bass.

The spawning of the bluegill bream and other sunfishes is very similar to that of the largemouth bass. We would expect this because both the largemouth and smallmouth are members of the sunfish family, and actually are not bass at all. The bream spawn at even higher temperatures than the largemouth. Their nests are smaller and usually closer together. In a "bream bed" the nests are often found almost touching each other so that an exposed bed looks like a mammoth piece of honey comb. In spite of this, the individual male fish still maintains his own territory consisting of his own nest. They first spawn in the spring when the water temperature becomes warm. **continued next month**



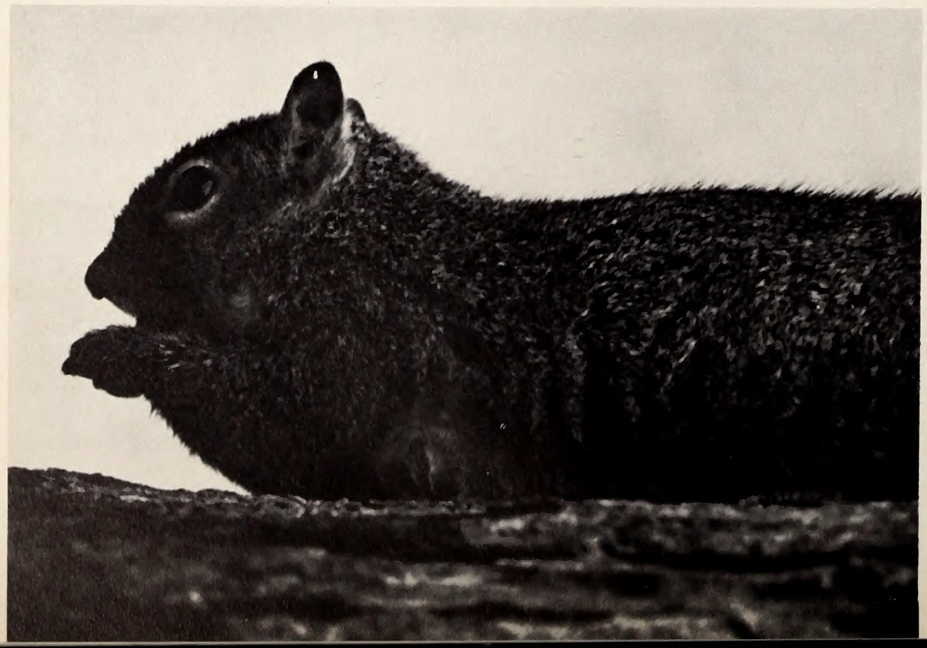
# Floating for Squirrels

by Frank Mooney

THERE'S something about the clatter of an alarm clock at 5 a. m. that really shatters me. After catching up with the vibrating monster, I cut the alarm and hit the floor; remembering why I was getting up helped a bit. I had waited eagerly for this day for weeks. I was supposed to meet Gene Hart at 6:15 a.m., put my boat in near his home and float the creek for some of those tough, old, walnut fattened squirrels. This was new territory to me so I took Hart's word about the creek being floatable. He had never been the entire length but what area he had hunted was passable. I didn't relish the idea of portaging a 14-foot boat through a swamp.

About seven o'clock we eased the 14-foot aluminum boat in the water after carrying it several hundred feet through wet, shoulder-high bushes. The river bank was 10 feet high and very slippery but the boat was fairly light and we managed okay. The stream drifted fifty yards from the edge of a small town where we usually launch the boat. Being this close to civilization, I figured we were in for a water haul. The portion of the stream where we were to hunt was about 20 yards wide and shallow in most places. The mist hung over the water which would help our undercover mission.

A quick, inexpensive way to camouflage your boat is accomplished by stretching a strip of rubber cut from an old inner tube around the boat; broomsedge or anthing available that will blend with the surroundings can be tucked under the rubber strip.



DAY was breaking with pink streaks stretching in the east, I knew sunrise wasn't far off. Everything was coming alive—roosters crowing, dogs barking and sounds of cars traveling through the small town nearby. This is the best time of day for any outdoor sport. The boat had floated only a few yards when I spotted a squirrel going up a large oak. Before we were in gun range another squirrel jumped to a tree near the first one. For just a second the high bank blocked our view, but this was all the time the second squirrel needed to make good his escape.

The first bushy tail was still motionless in the top of the oak and at the sound of the gun he curled up holding the limb. It hung several seconds before falling.

Hart held the boat while I retrieved the squirrel. After seeing how big and tough it was I knew we were in trouble; a nut cracker that large could absorb plenty of lead before going down. I was shooting a .12 gauge auto loader and Hart had a .22 automatic, but number eight shot was the only size I had on hand. Sixes will anchor a squirrel after it hits the ground better than the smaller shot. Knowing I would have to watch my range closely, I eased back into the boat. We were still in sight of the bridge when a squirrel scooted out of a leaf nest, stretched out on a limb and started hawking.

It's almost impossible to get close enough for a kill when they are looking for danger. Before Hart could get the sights lined up, the squirrel put the tree between us. After checking the tree and the nest, we figured the cagey rascal hit the ground and ran like only a scared squirrel can. With the problem of the high banks, at times it was impossible to see anything on the ground. Everything had been quiet for several hundred yards when a gray jumped from an oak tree trying to reach a den. I managed to get him before he reached the hollow. It was an old boar, and probably had been shot at before by the way he was travelling; anyway he was wise to the ways of the hunter.

AFTER pulling the boat over a sand bar we continued downstream. But the creek was shallow in places and we had to maneuver around some obstacles. We made enough noise during the process to frighten off the squirrels, so we drifted along as quickly as possible. As we passed a sharp bend, the sound of squirrels gnawing on nuts was sweet music to our straining ears. The sound is always pleasant. As we drew closer, the sound seemed to come from both sides. I spotted one in a small walnut tree on the left and scored; Hart shot one on the same side of the creek. The noise of the guns echoed and echoed down the creek. Sound carries further along the stream than in the flat woods.

After securing the boat, we checked a large beech tree on the right bank, from where the gnawing sounds seemed to come before we started shooting. It was large enough to conceal a dozen or two, but nothing moved.

Walnuts seem to fatten squirrels more than other nuts and the bushy tails love them. I have never killed an under-nourished squirrel around walnut trees. Farther downstream Hart saw a squirrel on a tree which was leaning out over the water. The squirrel was hit but he made it to land and hid under the bank in some leaves and sticks. Hart wanted me to bird dog for him, so I moved in and made the flush; the crafty critter ran up a tree where we finished him. Suddenly Hart slid down the muddy bank and splashed into water over his waist but managed to keep his rifle dry. We both laughed so hard I almost joined him in the chilly water. He looked like a milk cow going into the water. As he crawled in the boat, I told him he was too wet to ride but he got in anyway. He had that refreshed look!

When squirrel hunting in this manner, I always look for any movement or something that doesn't quite fit the background. It takes practice to spot your quarry; when I first started hunting, an elephant could have easily escaped me.

Most of the woods along the creek were second growth; a strip of trees along the banks were the main ones and that was one reason for our good luck. Actually there weren't enough "woods" to make it worth while for a walking hunt. The larger trees had been cut years ago. Some of those squirrels I'll bet, had never seen a hunter. There were walnut trees the entire length of the creek, and they helped keep squirrels from leaving for better feeding grounds.

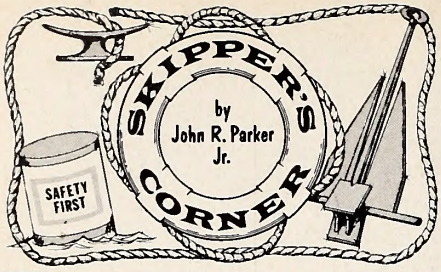
One area had a leaf nest in just about every tree; if local squirrels built those nests, the woods should be infested with them. We passed this gamey looking place during the noon hour, when any normal social tree climber would be taking a cat nap. It took us seven hours to make the trip and we figured it was three or four miles.

WHEN possible it's best to take a float trip on a still, cloudy day. If time is no problem, it's best to stop a couple hours during the middle of the day, since squirrels ordinarily move very little at this time. The ones we killed during the noon hours were sunning on den trees. They are hard to see that way, and one jump is about all that's needed to put them in a hole and out of sight. Action was to be fast at this time.

Everything was quiet with the boat drifting slowly with the current. A squirrel bounced on a tree leaning over the water, scolded us at the top of his voice. We drifted within a few feet of the tree before he decided his bluff wasn't working. He made a gallant attempt, but lost before he reached dry land. I wonder what he thought that boat was.

We flushed six wood ducks a little farther downstream, but it was a week before they were legal game; we made a mental note of this information for a later date. A wood duck hunter never slackens his keen-eyed vigil; although there is no telling when these birds last saw a person on that creek, they were still constantly alert.

A trip like this is much different from a regular hunt and more exciting too. You will find that you cover so much more territory and it certainly beats walking. Even with all the leaves off the trees, this type of squirrel hunting still has plenty of excitement. It's never the same thrill when walking up to a treed squirrel that knows in advance of your presence. This is also a great way to check on good fishing spots, camping places or jump shooting for ducks. I think you'll like floating for squirrels.




THE Wildlife Resources Commission has several methods for determining the amount of boat traffic on the waters of the state. The most obvious method is observation by protectors who patrol a given area, or by aircraft patrol. A less obvious method is by reviewing boating accident records maintained in the Raleigh office. At this writing (early September) records show a very noticeable decrease in weekly accidents. Therefore, we can logically assume from that information that boat traffic is also down. Incidentally, the annual accident total will probably be slightly higher than last year and we will have more on that later.

But, of course, one does not have to look at records or patrol a lake to know things just normally quiet down in the early fall, what with back to school and all that.

It is this period of the year that produces opportunities for some of our finest boat cruises, fishing, hunting, etc. And as usual, we suggest you give it a try.

If you do, remember, a camera can help you relive your outings, good or bad. Summer is lively, and summer and cameras go hand in hand. But if summer is a time for the camera, so too, is colorful fall; perhaps even more so.

Photography is a natural extension of boating fun and good pictures are the source of hours of pleasure for years.

Camera work aboard deserves considerations not present ashore. Camera protection is vital. Salt air will eventually corrode even the finest metal finishes. When not in use, your camera should be kept in a good case. For greater protection, inflatable pouches can be used. These are waterproof, they float and provide cushioning against dropping.

Double benefits are had when filters are used. Black and white film of moderate speed renders better prints when a medium yellow filter is used. Skies darken more pleasingly while clouds whiten. Ultra-violet absorbing filters are helpful when shooting vast areas of ocean and sky with color film. Your seascapes will look truer. A filter also protects your lens.

Lens shades are a must for avoiding glare.

Cramped shots from the cockpit area are often difficult to shoot. Try a wide angle lens for this situation, and it will permit you to shoot subject matter you might need to forego with a normal lens.

In shooting another boat passing parallel to your craft at high speed, pan your camera to follow the boat. The effect will impart action to the scene. The background will appear slightly blurred while the boat in the foreground will look sharp.

More drama can be added to your fishing pictures by shooting from a low angle aiming slightly upward from just above the waterline. Cameras that can be viewed waist high are best for this. If the sea is rough, get a friend to hold onto you belt while you concentrate on the action. You'll stay aboard!

If your light meter offers both incident as well as direct light, use incident for overall scenes. Glare from the water can distort your measurements with direct light reading.

Critical to any good picture is a level horizon line. Check this point of composition just before you trigger the shutter.

Shoot more than one picture of any given subject. Film is cheap. Memories are dear.

### In Trouble?

Spoken, the word "MAYDAY" can bring almost instant response and assistance. But "MAYDAY" carries the thought of disaster, and should only be used when you need immediate help.

Calling "MAYDAY" isn't the only way to ask for aid. The Coast Guard recently provided a list of other signals a boatman can use. Familiarize yourself with these signals so you'll be able to use and spot them. Not only will this give you a better chance of being rescued, but will aid the other boaters also.

**Night Signals** — Flames on board draw immediate attention. When boating, anything which will "contain the flames" will act as a fire-holder. (An empty metal tackle box or bailing bucket work quite well.) Fire makes an excellent signal, but *always* take special precautions when using it. *Never* leave it unattended.

Hand-held flares are also a good means of signalling distress at night.

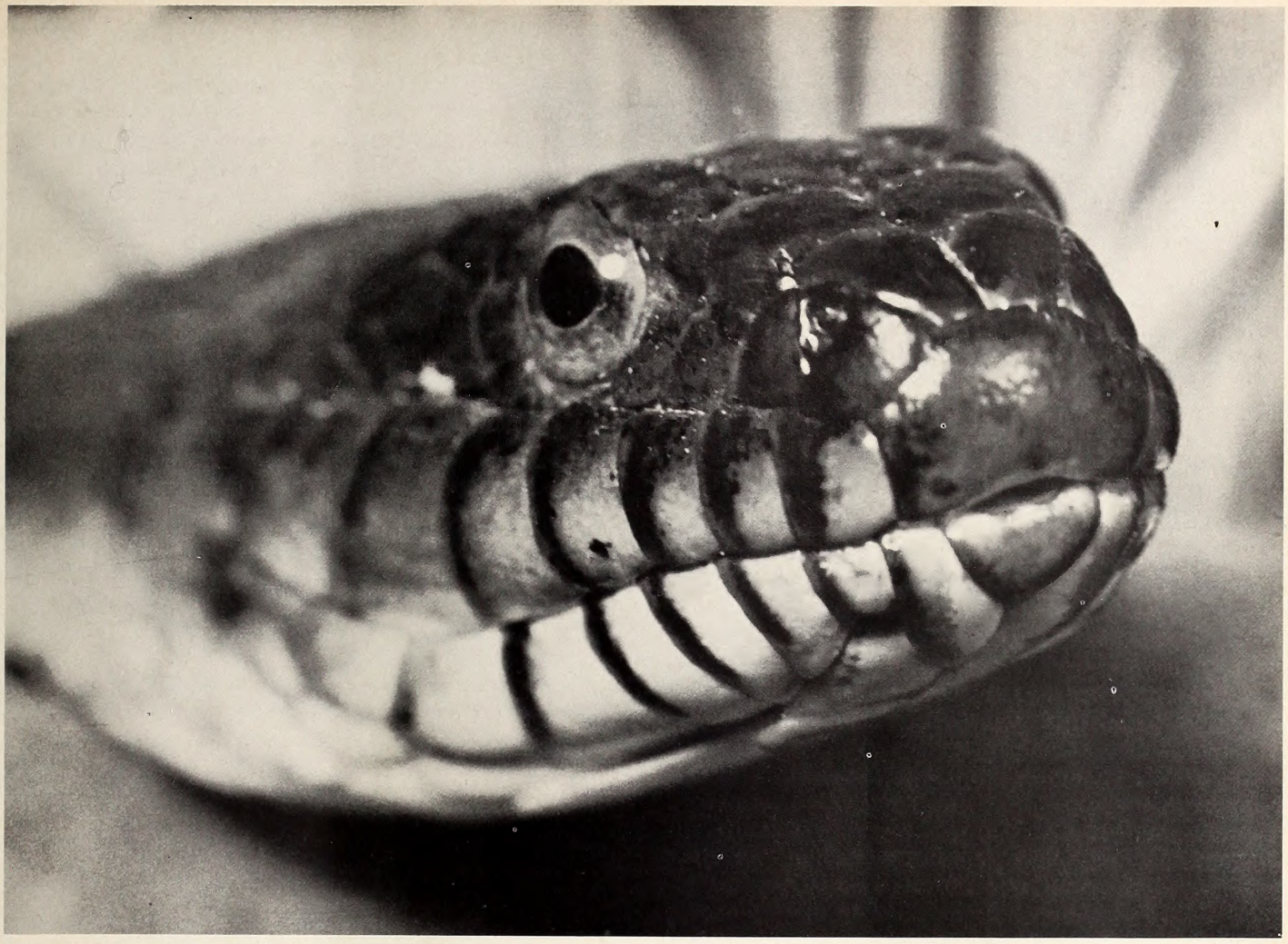
**Day Signals**—Raising and lowering your outstretched arms is an effective, and probably the simplest, signal. Do it slowly and repeatedly. To improve your chances of being seen, place a handkerchief or other material in both hands. (Make sure you stand on your boat's highest vantage point, and remember color contrasts.)

The "CANADIAN Surface-to-Air" signal, a recently recognized way of distress signalling in the U. S., consists of a 72 inch by 45 inch fluorescent ORANGE-RED cloth. This cloth has an 18 inch black ball and an 18 inch black square, 18 inches apart on the cloth's major axis.

This signal is especially "eye-catching," and you can tie it to your boat's cabin, across a hatch, or anywhere; as long as it can be seen from aloft.

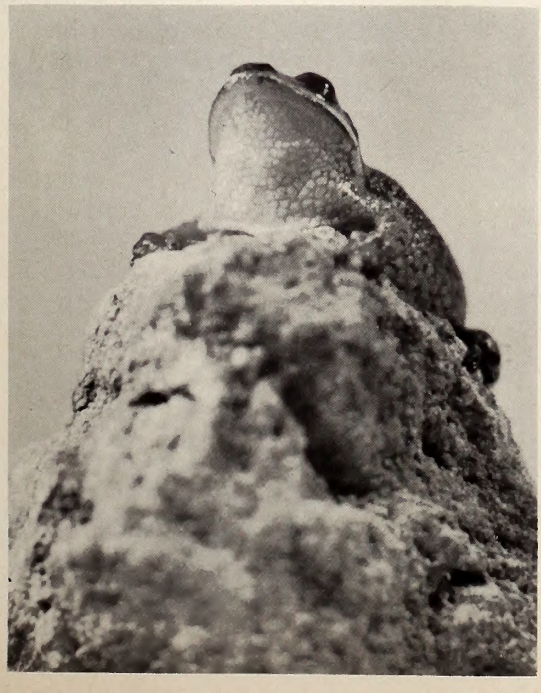
A smaller hand-held signal, the International Orange Flag, is also eye-catching, easy to store, and easy to see. (A life preserver or cushion of International Orange color can also be used . . . simply wave them back and forth.)

There are, of course, several other recognized distress signals you can use when emergency strikes afloat. A complete list of these is found in the Coast Guard's "Official Recreational Boating Guide." It's yours for 45 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.



**Second place winner is this water snake photographed in Orange County by David T. John of Chapel Hill. Pentax Spotmatic camera (with bellows extension), Kodak Tri-X, bulb fill flash 1/30 at f.11. Third place is this frog, photographed in Orange County by Thomas Clark of Carrboro. Nikon camera, Tri-X film.**

# Photo Contest Winners 1968



TO the wildlife photographer all species are fair game and the season never closes. He can ignore license requirements and bag limits: he is restricted only by the limits of his own skill.

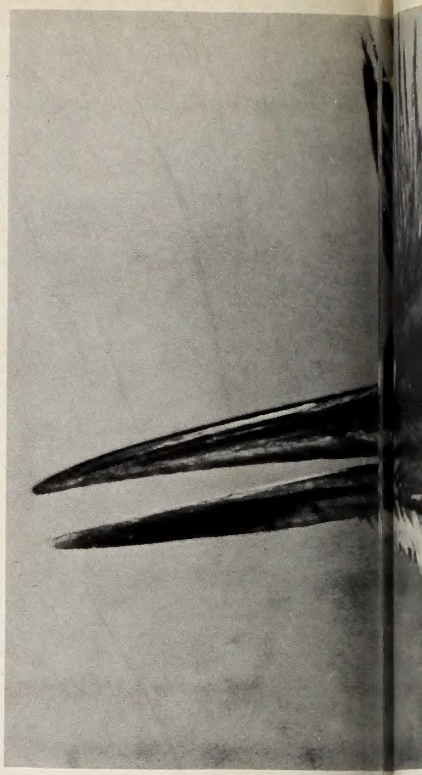
Wildlife photographers hunt without killing, capture without imprisoning, enjoy without destroying. They savor all the fruits of the outdoors: as hunters, they know the spice of suspense and the sweet taste of a successful shot; as conservationists, they know the joys of contemplating nature undisturbed; and as photographers they know the rich satisfactions of the artist.

To encourage this exciting sport—and to encourage photography as an art form—WILDLIFE IN NORTH CAROLINA has again sponsored an amateur wildlife photography contest. The winning photographs from this year's contest are shown on page three of this issue and on the following two pages.

Contest judges Fuller Rice, professional photographer and manager of the Capitol Camera Shop in Raleigh and Clay Nolan, Chief Photographer of the Travel and Promotion Division of the North Carolina Department of Conservation and Development, studied dazens of outstanding photographs before selecting the winners shown on these pages.

To allow amateur wildlife photographers to again take advantage of the upcoming hunting seasons, next year's WILDLIFE photography contest begins immediately. Contest rules appear on page 25.

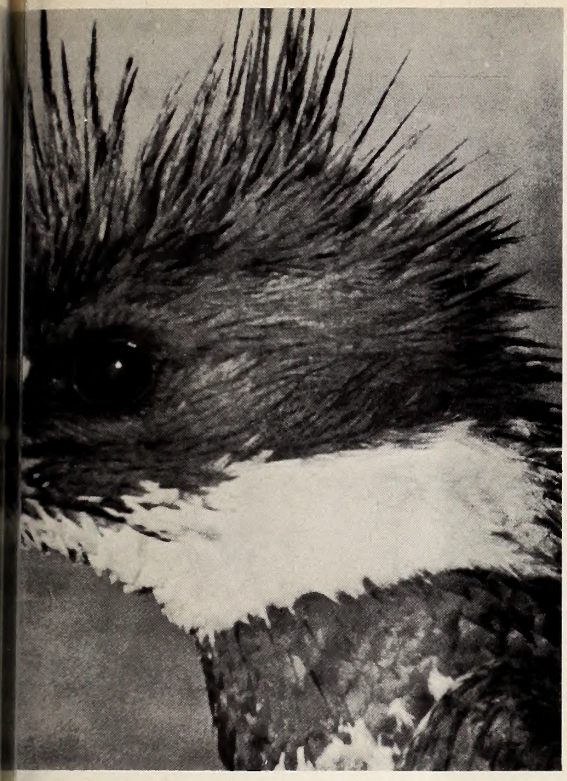
Spider with egg sac, photographed in Craven County by Madeline Teachout of Havelock; Pentax Spotmatic camera, Tri-X film, 1/25 at f.4.



Kingfisher, photograph
Kings Mountain. Mino
attachment), Tri-X film

Rhinoceros beetles, photographed in Guilford County by Randy Butler of Greensboro. Rhico Singlex (SLR) camera, Tri-X film, 1/125 at f.11.

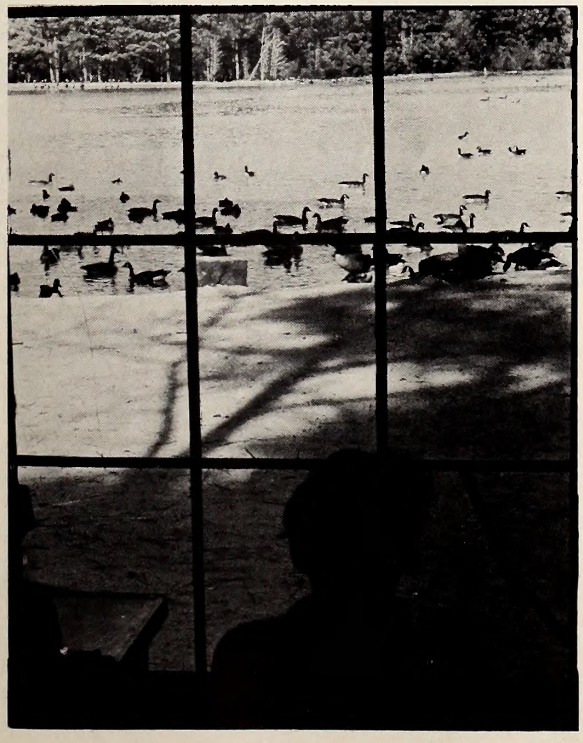
Raccoon, photographed in Wake County by
Louder of Cary. Miranda camera, Tri-X film,
at f.11.



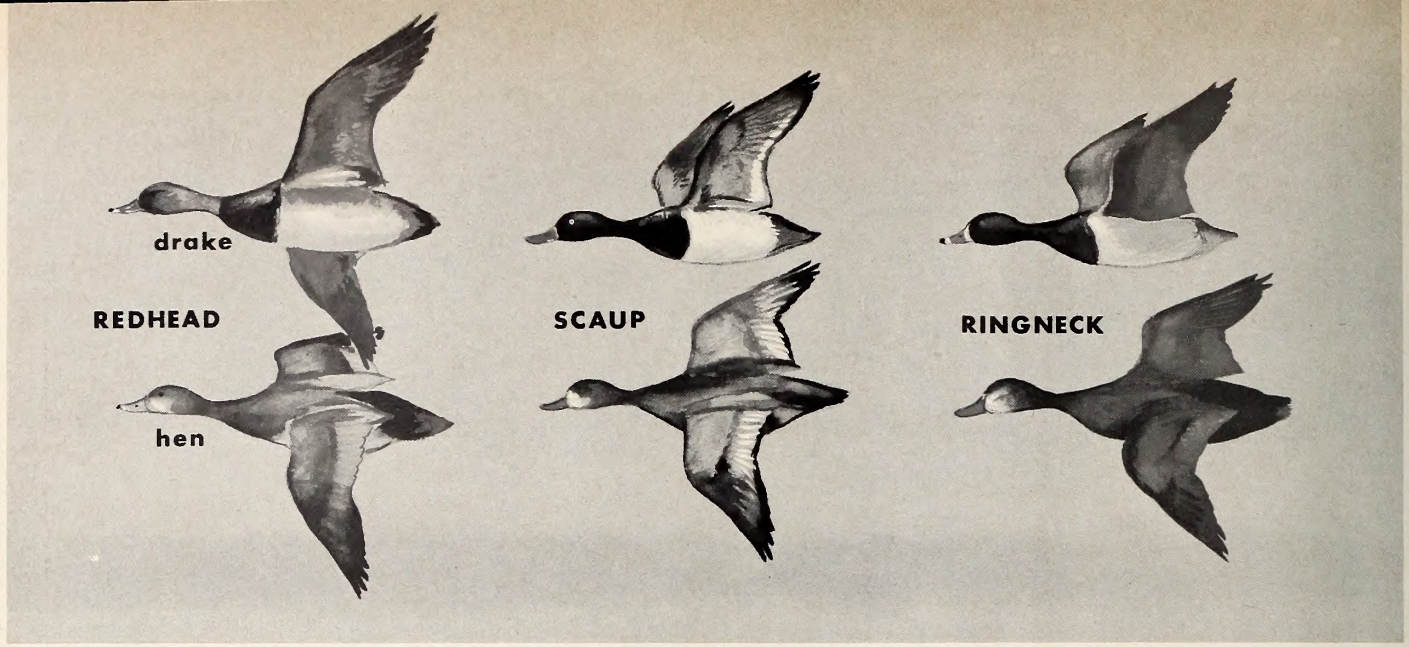
Cleveland County by Walter Vess, Jr., S[illegible] camera (150 mm lens with bellows [illegible]onic strobe fill flash 1/60 at f.16.

Opossum, photographed in Durham County by S. Duncan Heron, Jr. of Durham. Topcon RE-2 camera, Tri-X film with bulb fill flash 1/125 at f.8.

Canada geese, photographed in Anson County by S. Duncan Heron, Jr. Topcon camera, Plus-X film, 1/125 at f.6.



Great horned owl, photographed by Dr. F. S. Barkalow, Raleigh. Zeiss Contaflex Super camera. Plus-X film with strobe fill flash, 1/250 at f.11.




DUANE RAVER

**The diving ducks shown here are a bit difficult to identify, particularly on the wing. During the special season described here, only the middle ones, the scaup (greater and lesser) will be legal. The hens of these three look very much alike, so be extra careful before taking the shot.**

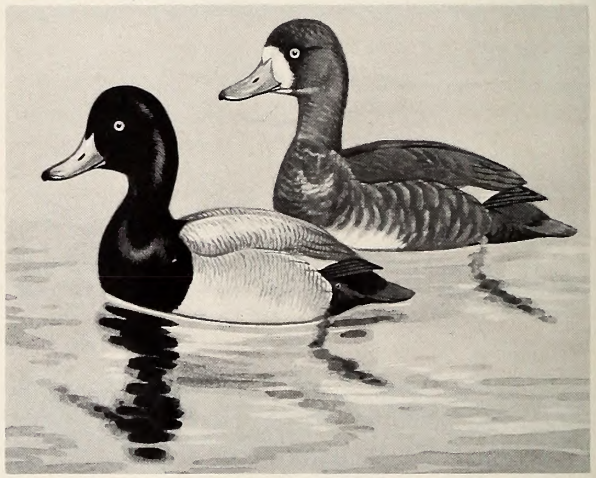
Wildfowlers in North Carolina and other states in the Atlantic Flyway will be permitted to shoot scaup ducks during late January, 1969, in restricted areas. The bag limit during the scaup-only season from January 16 through January 31, 1969, is five scaup per day, with 10 in possession. The taking of other species of waterfowl during this period will be illegal. This and other waterfowl regulations will be enforced by Federal and State officers cooperating.

Scaup ducks are relatively abundant in the flyway and are found principally in the larger, open waters.

The North Carolina area in which this special season will be permitted is described as follows and is shown in general way in color on the accompanying map: Coastal waters designated as commercial fishing waters east of U. S. Highway 17; except that this special season shall not be allowed in Core Sound between Drum Inlet and Harkers Island, nor in Pamlico River upstream and west of a line between Pungo River and Goose Creek, nor in Currituck Sound north of U. S. Highway No. 158.

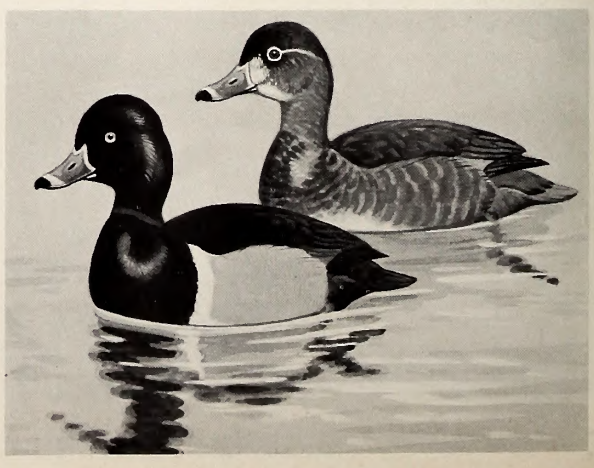
No "bonus ducks" will be allowed during the regular season; this is a departure from the 1967-68 waterfowl season. This means that the regular limits listed prevail during the regular season. For the past two years, bonus of two scaup, over and above the regular limits, were permitted in this designated area.

The special season places a special responsibility on the waterfowl hunter to kill only scaup. Identification of flying ducks is difficult with several diving ducks looking a great deal alike to the inexperienced hunter. Be sure of the duck before you shoot; once the duck is down it's too late.

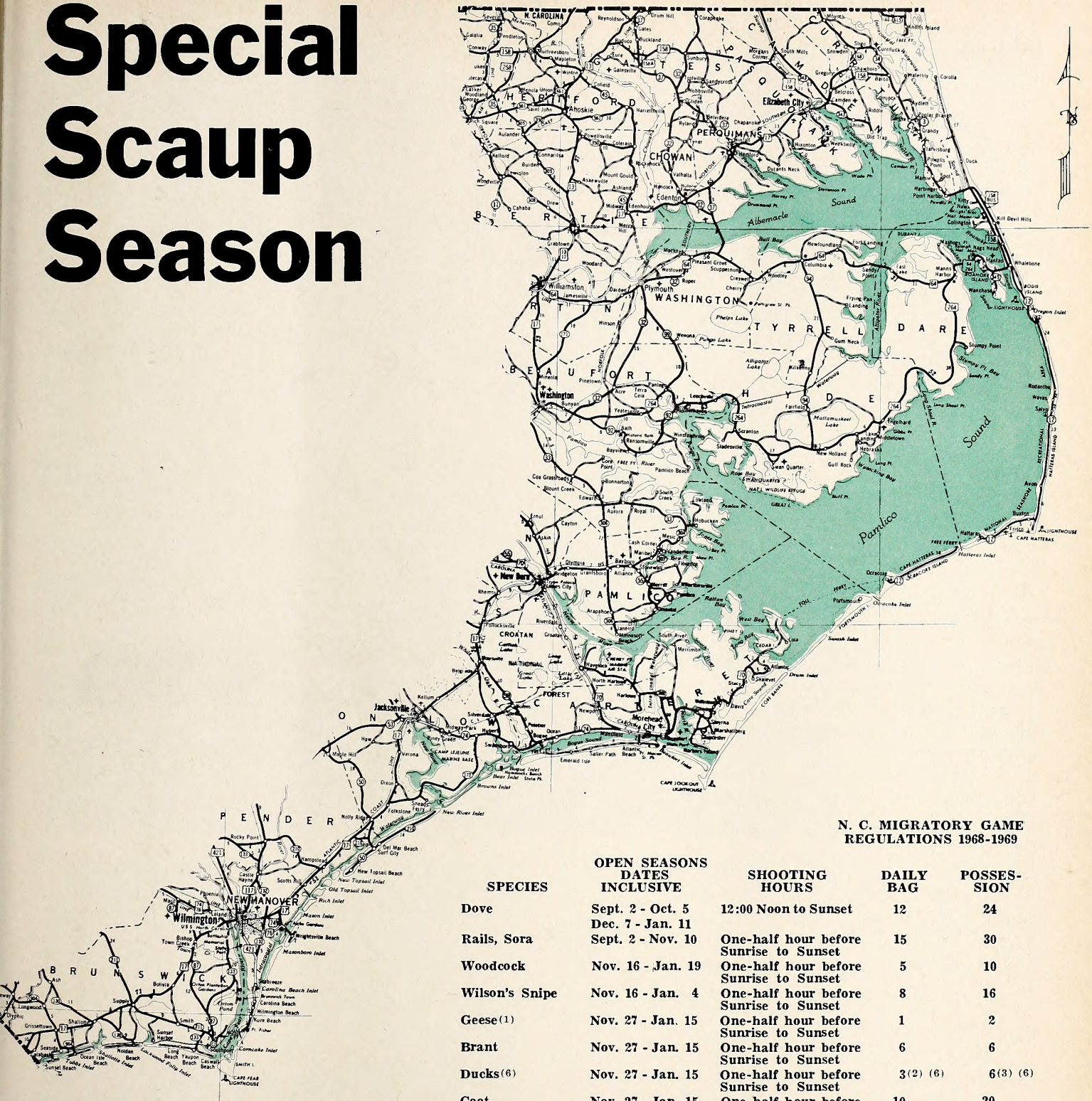


**Even on the water and fairly close at hand, the scaup or blucbills, (above) resembles the ringnecks or ringbills (below). The back of the drake scaup is lighter than the same section of the ringneck, and light patch of feathers just back of the dark breast feathers, is lacking in the scaup. Although the ring around the bill of the ringneck shows up here, it is often obscure in flight.**

WALLY HUGHES



# Special Scaup Season




**N. C. MIGRATORY GAME REGULATIONS 1968-1969**

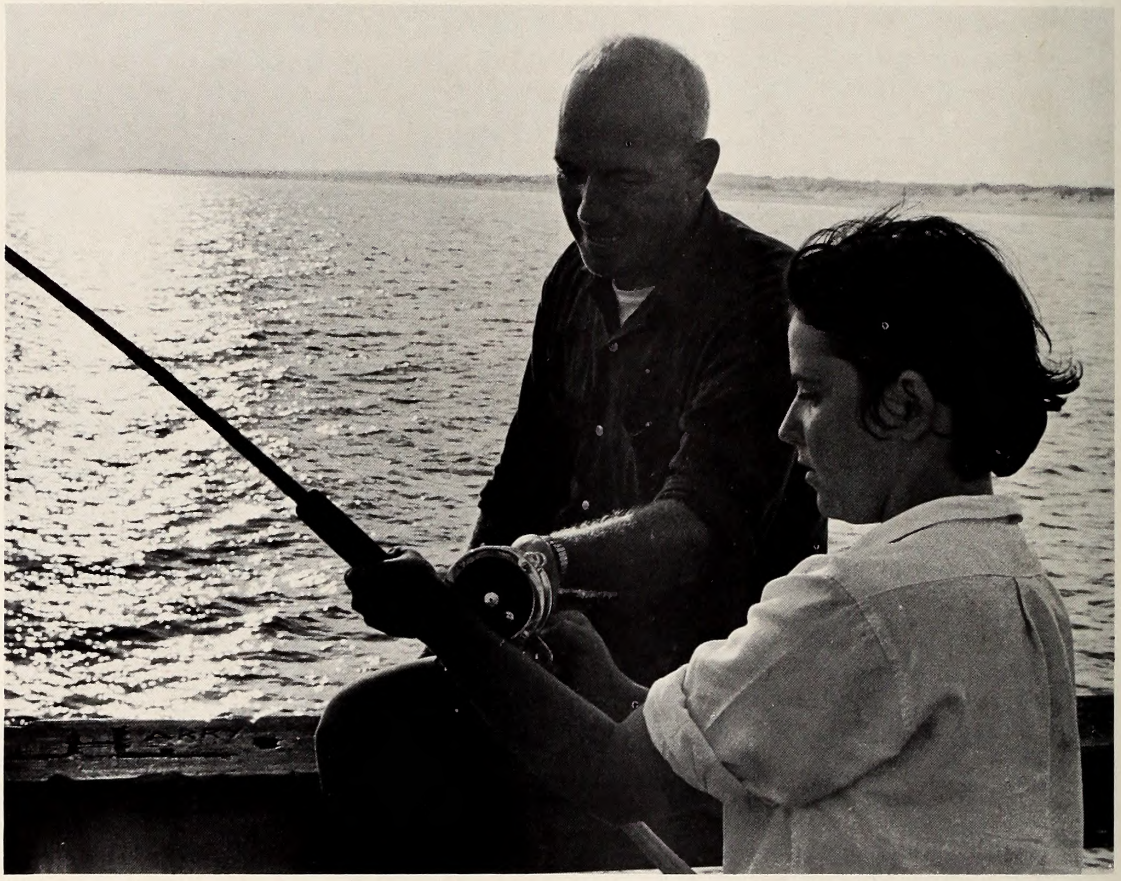
| SPECIES | OPEN SEASONS DATES INCLUSIVE | SHOOTING HOURS | DAILY BAG | POSSESSION |
|---|---|---|---|---|
| Dove | Sept. 2 - Oct. 5<br>Dec. 7 - Jan. 11 | 12:00 Noon to Sunset | 12 | 24 |
| Rails, Sora | Sept. 2 - Nov. 10 | One-half hour before Sunrise to Sunset | 15 | 30 |
| Woodcock | Nov. 16 - Jan. 19 | One-half hour before Sunrise to Sunset | 5 | 10 |
| Wilson's Snipe | Nov. 16 - Jan. 4 | One-half hour before Sunrise to Sunset | 8 | 16 |
| Geese(1) | Nov. 27 - Jan. 15 | One-half hour before Sunrise to Sunset | 1 | 2 |
| Brant | Nov. 27 - Jan. 15 | One-half hour before Sunrise to Sunset | 6 | 6 |
| Ducks(6) | Nov. 27 - Jan. 15 | One-half hour before Sunrise to Sunset | 3(2) (6) | 6(3) (6) |
| Coot | Nov. 27 - Jan. 15 | One-half hour before Sunrise to Sunset | 10 | 20 |
| Gallinule | Nov. 27 - Jan. 15 | One-half hour before Sunrise to Sunset | 15 | 30 |
| Hooded, American or Red Breasted Merganser | Nov. 27 - Jan. 15 | One-half hour before Sunrise to Sunset | 5(4) | 10(5) |
| Scoter, Eiders and Old Squaws | Nov. 27 - Jan. 10 | One-half hour before Sunrise to Sunset | 7 | 14 |

(1) Closed season on snow geese.
(2) May not include more than: (a) 2 wood ducks; (b) 1 canvasback or 1 redhead; (c) 2 black ducks; and (d) 2 mallards.
(3) May not include more than: (a) 4 wood ducks; (b) 1 canvasback or 1 redhead; (c) 4 black ducks; and (d) 4 mallards.
(4) May not include more than 1 hooded merganser.
(5) May not include more than 2 hooded mergansers.
(6) A special scaup-only season shall be allowed during the period January 16 through January 31, 1969, with a daily bag limit of 5 and possession limit of 10 scaups, in coastal waters designated as commercial fishing waters east of U. S. Highway No. 17; except that this special season shall not be allowed in Core Sound between Drum Inlet and Harkers Island, nor in Pamlico River upstream and west of a line between Pungo River and Goose Creek, nor in Currituck Sound north of U. S. Highway No. 158.

# Kings for Queens

Big game fishing for king mackerel from ocean piers isn't so tough. Even the ladies can do it.

by Diane Dean
Photos by Jim Dean



THERE are some sports that men would have us women believe are just too tough for members of the fair sex.

Float fishing with live bait for king mackerel from an ocean pier is one of these so-called rugged sports. I strongly suspect, however, that the real reason women are not encouraged to take part is that men don't want their masculine float fishing fraternity penetrated by feminine giggles and helpless antics. When men retreat to the end of an ocean pier to fish, they figure that they are relatively safe from such intrusions—and they're right.

Very few women attempt this sport where only long hours of patience and carefully nourished ability pay off with a fish.

But that doesn't mean that wives and girl friends of anglers must resign themselves to sitting at home staring at four walls, or bottom fishing somewhere else on the pier. Women can fish for the big ones too, but to do so, you have to be sure to avoid wearing out your welcome.

Sometimes a helpless woman attracts favorable attention from men, but rarely on a fishing pier. Serious fishermen—and all float fishermen are serious—have little patience with a woman who is forever asking for help and getting in the way.

WHEN I decided to try king mackerel fishing, I also decided—before I asked for my husband's okay—that I would try not to appear helpless or squeamish, and that I would stick to it as long as anyone. In fact, I would make a game of trying to outfish the men.

It worked beyond my wildest dreams.

My husband, Jim, gave his permission, but I could see that he thought he might regret it, even though I have done a lot of fresh and salt water fishing. I could tell he thought that catching king mackerel, albacore, cobia, tarpon and sharks might be another matter. Still, he relented, and after several float fishing trips, I finally made him regret his choice—but not in the way you'd think.

We arrived at an ocean pier on Bogue Banks one October day about 6 o'clock in the morning—much later than we had planned. The fishing is often at its peak at sunrise, but our alarm clock hadn't gone off so we had our fingers crossed that

it wasn't too late.

We had missed the sunrise, but it was still early, and the pier owner told us that there had been no action yet. We walked out on the pier carrying four rods, two tackle boxes, a camera, and an ice chest. My husband takes everything but the kitchen stove when he goes fishing, and he's even talking about bringing a charcoal grill to cook fresh-caught fish.

If you've never seen the ocean early in the morning, and walked all the way to the end of the pier with that much stuff, you don't know what you've missed. The pier was lined on both sides with men, women and children, and some of them had spent the night, wrapped in blankets with their lines dangling over the side, waiting for a nibble.

After we set up our king mackerel rods—six-foot boat rods with 4/0 Penn Senator reels filled with at least 400 yards of 30-pound test line — we tried to catch a bluefish to use as live bait. They weren't hitting, so we had to hope that some kindly bottom fisherman would catch one and let us have it. Without blues or some similar fish for bait, the day can end before it gets started.

Finally, someone shouted "bluefish," and I saw one being brought in on a bottom rig over the side of the pier. I broke all records getting to that blue before anyone else. That bottom fisherman felt sorry for me because I was a woman, and happily turned over his catch. Besides, I offered him 50 cents for the fish, and he took it.

I quickly hooked the blue onto my float rig, and lowered him into the water off the end of the pier. A float rig consists of a single hook with a treble hook attached to dangle just below it. A steel leader connects the hook arrangement to a cork which floats on top, keeping the live bait hanging about six-feet under the surface.

**A woman's intuition and patience paid off for the authoress with this 18-pound, pier-caught king mackerel. Who wouldn't be proud of it?**

As it turned out, that was the only bluefish caught on the pier all day, and I might not have gotten my bait if I hadn't been a woman with 50 cents.

King fishermen fish from the very end of the pier, and there were several other floats out with live bait, although none of them was baited with the bluefish which kings seem to prefer. After dinner, most of the other anglers had quit fishing, leaving me with my lonely blue; apparently the only one in that part of the ocean.

The weather seemed perfect, but the big fish were not around. People fishing for spots were pulling them in right and left, and there were a few times when I wondered if maybe I shouldn't join them. Jim left to get coffee several times, but nothing was going to move me off the end of that pier. I intended to be there if anything happened.

ABOUT 4 o'clock in the afternoon, Jim was ready to call it a day, but I had a feeling—call it women's intuition.

The water became rougher, and the wind direction changed, but I just sat there staring at my float and that crazy bluefish. He had been on my hook for nearly seven hours, and I felt that even he had done a good day's work, especially since few bluefish live that long on a hook.

The sun was setting, the pier had quieted down, and then suddenly my float disappeared even as I watched it! I couldn't yell, and I could only watch as it plunged out of sight while my reel's drag began to squeal. I know there isn't sweeter music anywhere than the sound of a buzzing drag.

I quickly picked up my rod, which had been leaning against the rail with a loosely-set drag as is the custom, and rared back. The fish was well out to sea by then, and he hardly slowed down when I set the hook. When he finally stopped and didn't run again, I knew it must be a king. Tarpon will usually jump and sharks fight a more sluggish, but stronger battle.

After reeling for what seemed like hours with Jim helping when I got tired, I finally had him near the pier. When I looked down and saw him for the first time, it was the biggest thrill I had ever had. There was a brief flurry of water around the pilings, and then two men gaffed him with a long hook and pulled him up over the rail. He was beautiful, and I wouldn't have traded him for anything in the world at that moment. Back on the scales in the tackleshop, he weighed 18 pounds.

Jim—who could hardly believe I'd caught a king —was proud and happy. Maybe he secretly thought that I'd caught the fish he would have caught if I hadn't been there, but he didn't dare say so.

After all, my patience had paid off with a fish, and I can assure you that float fishing is just as exciting for a woman as it is for a man.

Take it from me, I can't wait to go back again. ◆

# Safety for the Hunter

by John R. Parker, Jr.
Outdoor Safety Supervisor

"HUNTING accidents are not numerous in North Carolina, but a few are too many." So goes a line from a hunter safety booklet distributed by the Wildlife Resources Commission. It was used then and is repeated now as a general statement of fact. Bona fide hunting accidents are not numerous in this state. Too often the gun accident in the home, the plinking accident, and even the suicide are attributed to the hunter. However, such mishaps, as we will explain later, are not considered nor recorded, as hunting accidents.

Of course, we must not wait for accidents to become numerous before taking action. It is because an average of 14 hunters are accidentally killed each season that space is reserved in this magazine for information on the subject. It is because of these fatalities that a handful of volunteers in the state conduct hunter safety courses, primarily for youngsters.

Most will agree that programs must be initiated prior to the time when accidents, of any type, become numerous. But what is numerous? Are the hunting accidents in North Carolina already at an irreducible minimum? Probably not. Would a costly program have reduced last season's 13 fatalities by even one? Possibly.

The above questions may never be answered with hard and fast statistics. But there are two schools of thought on this matter. Some say you can't prove that your safety programs work; others say you can. Along this line, we read that a few states have noticed accident reduction after stepping-up the old hunter safety program or initiating a new one. A new approach, then, is what we wish to present here.

### What Is A Hunting Accident?

Hunting accidents are considered to be those gun accidents which occur outside of the home and arise from the activity of hunting, including travel to and from the hunting area. Since 1960, the Wildlife Resources Commission has maintained records on hunting accidents. By analyzing these records, the Commission is able to release to the news media factual articles on the subject, prepare an annual summary type of article for the *Wildlife* magazine and prepare other safety literature. The information is also used in hunter safety training.

### Reporting

Reports are filled out on Uniform Hunter Casualty Reporting forms supplied by the National Rifle Association. A copy of each report is forwarded to NRA for that organization's national accident survey. Along with field reports from wildlife protectors, additional preliminary information is gathered from newspaper clippings.

For the purpose of statistics, September 1 through March 31 (normal closing date for the controlled shooting preserve season) is the period during which reports are obtained.

### Hunter Safety Training

The Commission, along with the National Rifle Association, administers a joint training program through which hunter safety instructors are certified and supplied with basic materials for setting up safety courses. All persons 21 years of age or older are invited to take the instructor test. Inquiries are welcomed from anyone seeking information and literature on hunting safety.

Persons willing to spend time on such training, especially training of youngsters, would be performing a truly beneficial service to their community.

As is true of any volunteer program, success depends on the interest of the participants. Instructors are requested to send this office reports on the number of students trained. We never hear from 99 percent of the instructors after certification.

We know that there are individuals and clubs in the state that make training available, but youngsters receiving this service are relatively few.

If, in fact, there is only token hunter safety training at present, what avenues to a better program are available? In perusing the programs of other states, I have learned of several approaches. The desirability of these is, of course, a matter for debate and study.

One program that gets down to the roots of the problem involves license. Fourteen states, according to information recently received from the NRA, have such programs. We should mention here that such a program must be enacted by the legislature. It could not be required by the Wildlife Resources Commission or other similar fish and game departments throughout the nation.

While these programs vary from state to state, they all have a basic similarity. The most recent state to enact this type of program is Pennsylvania. Under this program persons under 16 years of age must complete a hunter safety course by September 1, 1969. Thus a year's notice was given by Pennsylvania for those young persons desirous of purchasing a hunting license.

The courses are usually taught by conservation department personnel or paid volunteers. Either approach requires more people in the fish and game department and usually a fee to the student.

Some states indicate success with the program. New Jersey, for example, has realized a 50 percent

***The knotty problem of hunter safety isn't solved here, but some possible avenues leading to a solution are discussed. One "accidental" death due to hunting is one too many; do your part to make this season a safe one.***

reduction in fatalities since mandatory training began.

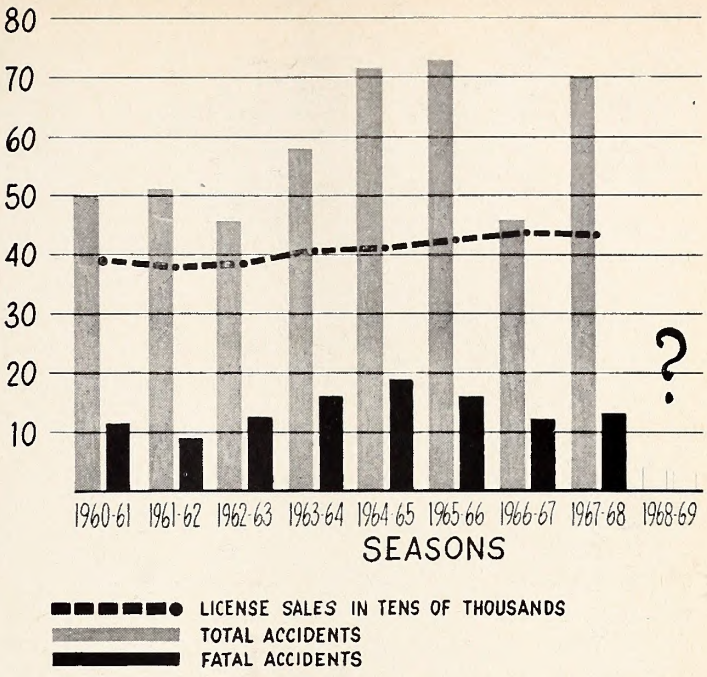
Being mistaken for game is a common accident type. Hunters have been shot for crows, deer, bear, squirrel, etc. (We have yet to hear of a person being shot in the mistaken belief that he was a duck!) One approach to this is the use of a bright colored cap, jacket, or patches. Fluorescent orange is usually the most popular color. You may recall that the traditional red and, to some degree the yellow, have proven less visible under field conditions than the orange. Massachusetts led the way in studying this, several years ago. A few states have state-wide laws requiring hunters to wear the safety colors on all hunts except for waterfowl. A few others require the colored garments on big game hunts. But most states require, by regulation, a safety color on management area lands only. This is true in North Carolina. Again, some states claim benefits from this approach.

Accident statistics are helpful in pointing the way for safety training. And to be most beneficial, reports should be accurate and complete. A few states have passed legislation requiring that all hunting accidents be reported. Some require the reporting of all accidents; some require only those which necessitate a doctor's attention.

North Carolina has no such law. And, we might add here, that the state and the Wildlife Resources Commission, presently have no legal tie to hunter safety or hunting accidents. The tie, I would say, is a moral one. It is a service to the hunters and citizens of the state. Least popular of the new approaches to hunter safety, then, is legislation making it a crime to shoot someone due to careless or negligent gun handling. Some states include destruction of property, livestock, etc.

Certain authorities on the subject feel that courts might be somewhat averse to assessing criminal penalties in accident cases. But referring to Pennsylvania again, we find that "the courts have supported us in most instances, even though the penalty is greater than for involuntary manslaughter under the general criminal code. In Pennsylvania this type of action is made only against hunters shooting someone *in mistake for game*. The loss of one's hunting license for one or more years is the usual penalty in other cases of carelessness.

Another approach that has no doubt been implied if not pointed out directly is a stepped-up volunteer




**Hunting Accidents, 1960-1968**

**Only time will tell what the current hunting season will bring, but a grim prediction of 11 deaths and a total of 60 accidents seems likely from a look at the past seasons' records.**

program administered by the Wildlife Resources Commission or some other state agency. North Carolina is really no different than dozens of other states. That is, we have no law on the subject and only token training. But we must remember that a program increase must often require more people and funds. The wildlife protectors, already overloaded, could not be expected to do regular hunter safety training. And anything short of a regular and continuous program will not reduce accidents.

There is one other possibility not yet discussed. This involves the paying of volunteer instructors by the state according to the number of students certified. But here again, funds must be earmarked for this. Some states which use this method for a volunteer or a mandatory program may find themselves up against 10,000 new young hunters each season.

No, hunting accidents in North Carolina are not numerous, but according to our annual average, 14 hunters, young and old, will die accidentally in the next five months. And if we start on an upward trend, who knows?

No doubt a new approach to hunter safety would reduce accidents among hunters. It would not, for the most part, touch the non-license buyer. So perhaps we have overlooked one last approach. Is there a place in the public schools for such training, perhaps as a part of a general safety program for the students? Such a program may, in the long run, give all citizens a more responsible attitude toward gun handling, gun ownership, etc.

Yes, there are many questions and perhaps we have touched on an answer. But the decision belongs to the people. ⬍

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

Public Hearings on Fishing Regulations

The Wildlife Resources Commission has scheduled four public hearings to give fresh water anglers a voice in setting the 1969 inland fishing regulations. Two hearings are scheduled for Asheville on October 1, one at 2:00 p.m. and the other at 7:30 p.m., both in the Courthouse. Of special interest to trout fishermen will be a proposal to allow 7-days-a-week fishing on western wildlife management areas and wildlife restoration areas with provision that so-called "native" and "trophy" stream fishing regulations would apply, i.e., single-hook artificial lures and single-hook artificial flies.

Another public hearing is set for October 2 in the courthouse, Salisbury, 7:30 p.m., and on October 3 there will be a hearing in the Agriculture Building, Washington, also at 7:30 p.m.

Trout Fishermen — RSVP!

The Division of Inland Fisheries of the Wildlife Resources Commission has sent out brief questionnaires to mountain trout fishing license buyers, who were selected at random, asking how many trout they caught during the 1968 season, how much time was spent, and whether they fished regularly, occasionally, or not at all. They were also asked to suggest what changes in trout fishing regulations they believe would help their trout fishing. The Commission requests persons receiving these questionnaires to return them promptly, and requests trout fishermen who were not polled to volunteer this information. Information gained from replies will be of extreme value to the state's trout management program.

First Segment of Dove Season Ends October 5.

The first segment of a split dove season ends at sunset, October 5. The second segment will open at noon on December 7 and end at sunset January 11. Shooting hours for this will again be from 12:00 noon to sunset, with a bag of 12 birds daily, 24 in possession.

# The Longleaf Pine

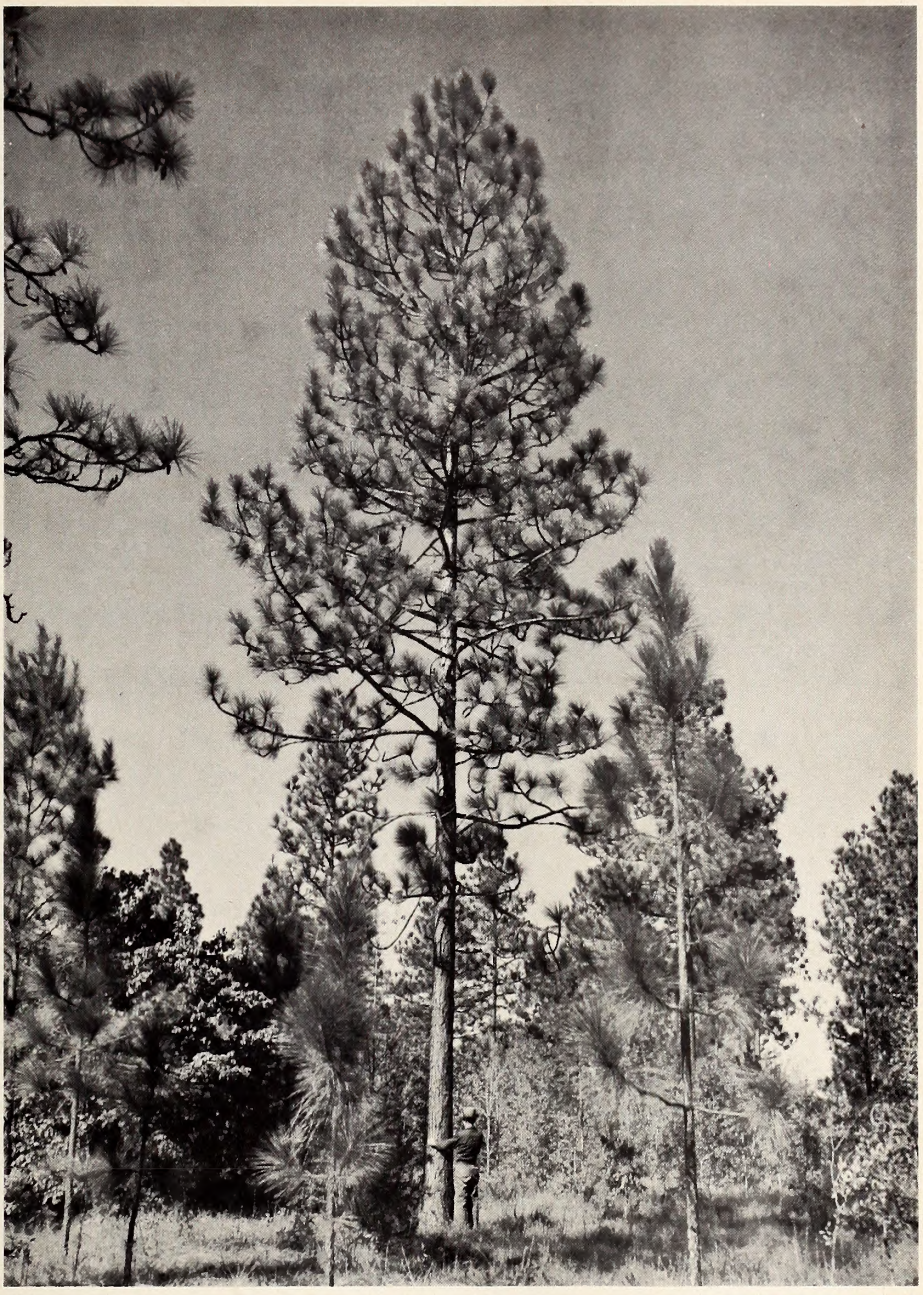
by Grace Draper

"HERE'S to the land of the longleaf pine . . ." So begins an old motto of our Old North State which proud old-timers once hung above their fireplaces, the center of much household activity. Certainly one of the loveliest symbols associated with our Southern heritage is the beautiful, aristocratic longleaf pine, which is found in sandy soils from southeastern Virginia to western Texas. And nowhere does it grow more magnificently than through our North Carolina sandhills and coastal areas.

What a sad commentary it is that each year vast areas of this valuable longleaf timber is laid waste, leaving blackened and tortured stubble behind, often due to man's carelessness about **fire!** For this pine, rich in gum or pitch, burns quite readily.

The longleaf pine may have been the first North American tree to be "cultivated" (1727), as in colonial America the choicest stands were set aside to be used as masts for ships of the British Navy. The wood is heavy, strong, and durable; it is used for many types of construction, and it ranks second to the Douglas fir in our Country's storehouse of forest wealth. The demand for its resin and tar products has made this process one of the major forest industries in the Southeast. The early colonists originally furnished such naval store products to England.

Aside from its straight, handsome trunk (it may grow to heights of 100 to 120 feet), the tree is easily recognized by its beautiful needles, which may vary from 8 to 18 inches in length. The large cones are popular for decorations, particularly at Christmas; and children make bird-attracting feeders from them by spooning into the cones a mixture of suet, peanut butter, and seeds, and then hanging by wire from low branches in the yard. ◆



U. S. FOREST SERVICE PHOTO

**The forester measures a mature longleaf, perhaps for harvesting. Younger trees are preparing to take its place. Good forest management also includes wildlife.**

**People For the Land**

People for the Land consists of members from families, large and small, who are attentive to new environmental conditions affecting our welfare. The Society is based upon the premise that those who inhabit a dwelling place are responsible for its care and for the conditions left for future generations. As population growth places many impossible burdens upon efforts to save a healthful natural environment, the Society's philosophy has two interacting points:

1. People for the Land hopes for a richer and safer life for all living things with the assurance that we stay within the land's capacity to provide such a life. We therefore encourage for the future the planning of family size to keep each generation safely within this limit.

II. People for the Land hopes for the preservation of our natural world to retain the qualities and pleasures of a good life. We therefore resist abuse to nature's irreplaceable wonders and work to keep our country healthful and beautiful.

**The Program**

The People for the Land program provides each member an opportunity to favorably affect the quality of his environment as he assists with and is upheld by the strength of the following group efforts:

The Society presents through public media the facts on environmental problems based on information disseminated by the United States Department of the Interior.*

The Society initiates conservation and beautification projects and cooperates with world, national, state and local efforts of similar interest.

The Society assists those who would seek knowledge about family planning through referrals to sources of proper education.

The Society continuously identifies its concern publicly through the display of individual membership emblems.

The Society works for its own growth to increase public awareness of environmental problems and encourages expressions of concern to public officials.

The Society seeks the best conditions for the brotherhood of individuals and for the individual's fullest development, resisting his loss to a faceless crowd.

**The Local Chapter**

The beginning local chapter becomes established when members from two families desiring local progress list an address for People for the Land, a healthful environment society, with the local Chamber of Commerce. The listing provides contacts for prospective members and national members who would locate and join community efforts. The central office should be notified in order that "Land Voices," the newsletter, can report progress, projects, ideas, etc. The local program consists of the traditional elected officers and a project coordinating committee, which may be the same group. For the chapter members, the minimum program is the volunteering of one day a year, or the equivalent, to conservation and beautification projects. This basic program can be abundantly rewarding, especially where memberships are large. Of course, local group initiative beyond the basic program is encouraged, except in the proper programming of public media information which must be approved by the central office, even when sponsored by a local chapter. Meetings, local dues, projects, etc., depend upon chapter size, enthusiasm and opportunity. The central office supplies suggestions for chapter procedures upon request and assists in the coordination of endeavors involving several chapters.

Members who do not affiliate with a chapter are most important to the national program. The merging of total effort and the success of the Society's goals will be largely determined by this independent support.

**Board of Directors:** Glen W. Bunting, Jr., Raleigh, North Carolina; Gwendolyn Currin, Hartford, Connecticut; Ronald W. Krueger, Moses Lake, Washington; Jacob C. Martinson, Winter Park, Florida; Vance Smathers, Petersburg, Virginia.

*The Conservation Yearbooks, excellent and colorful, present a case for serious concern. *Quest for Quality,* $1.00. *The Population Challenge,* $1.25, *The Third Wave,* $2.00, and *Man—an Endangered Species?,* $1.50, are available by check to Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.

DEAR SIR:

Pisgah National Forest in North Carolina is known throughout the world as the Cradle of Forestry in America. One day Durham, N. C. will be known as the birthplace of People for the Land, newly formed organization, the aims, ambitions and activities of which are described below.

Recently Dr. John Rock, the codeveloper of the birth control pill and himself the father of a large family, concluded in a popular magazine that our great population growth has now put upon us a moral obligation to plan small families. Elsewhere we hear of ever increasing demands upon our land—possible plans to dam up the Grand Canyon, cut down the redwoods, build another road through the Smokies, etc. In much of the world, starvation is killing or threat-

ening nearly half our human family. And now rebellion of the unfortunate masses and even war seem related to the conditions of crowding. Many authorities, recognizing our basic needs for privacy and escape, believe that human congestion is causing the increases in violence, crime, riots and drug addiction. In short, the greatest problem in history is upon us—overpopulation.

The individual feels the threat in other ways. By the year, his one vote counts less in his government. And waiting his turn, he must compete harder for a desirable place or simple pleasure. The working hours grow shorter, but a vacation, even in national parks, must soon require applications and lengthy waiting lists. His scenery and outdoor sport, his very air and water are fouled by growing congestion and machines. In great numbers, individuals thus become each other's problems, a situation which indeed deserves our concern.

The United States Department of the Interior warns us how the many dangers add together, too often without our noticing. Such publications as *Man — an Endangered Species?*, *The Population Challenge* and *Quest for Quality* (available through the Post Office) remind us that tax expenses for growing numbers, the careless exhaustion of resources and the upsetting of nature's balance keep us from our dreams of living and, in fact, endanger our very existence. Yet we continue to grow at a rate that could double our numbers in an average lifetime.

If we are to preserve the dignity of space and plenty, we must find a new land ethic. People for the Land, a society dedicated to the preservation of a healthful environment, offers a beginning. We invite you to give careful study to a solution for these problems and to consider this society's part in that solution. We need your help.

Sincerely yours,
KEENER SMATHERS
Executive Secretary
Box 2504
Durham, N. C. 27705

### See or Hear

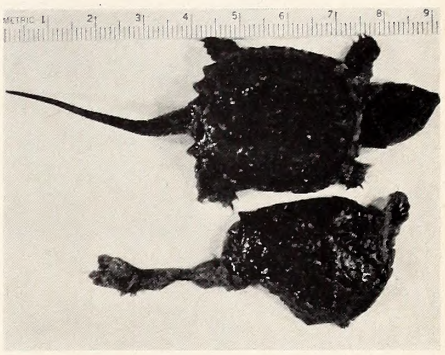
DEAR SIRS:

This is a follow-up to the letter "Eyes or Ears?" (as to how the robin finds the worm) which appeared in the July issue of your magazine.

As a birder, I, too, had wondered about this. I had watched robins again and again—and still wondered. However, the question was settled for me when I read "Science Proves It—The Robin SEES the Worm" by Frank Heppner in the September-October 1967 issue of *Audubon Magazine*.

If there are others who are wondering, I refer them to this article which is both informative and interesting.

MISS LOUISE NUNNALLY
KNOXVILLE, TENNESSEE



**Claiborne Wood of Durham took these snapping turtles (and remains of one more) from the stomach of an Orange County largemouth bass. Some diet!**

### Good Advice

I was "born and bred" in the woods and swamps of North Caroli-

## THE FOLLOWING RULES APPLY TO THE 1969 WILDLIFE IN NORTH CAROLINA PHOTO CONTEST

1. **Eligible photographs must: (a) be taken in North Carolina between August 1, 1968 and July 31, 1969; (b) be taken and submitted by residents of North Carolina; (c) show native North Carolina wildlife (any animal, fish, bird, insect or other wild fauna).**
2. **Only black and white prints should be submitted. Do not send negatives. However, negatives of the 10 winning photographs must be submitted on request.**
3. **Entrants may submit no more than three separate photographs each. Each photograph should be submitted as a separate entry and each entry should include with the submitted photograph, the following information printed on an 8 x 10 sheet of paper: (a) name of entrant; (b) complete address and zip code of entrant; (c) date photograph was taken; (d) place photograph was taken; (e) identification of subject; (f) type of camera used; (g) type of film used; (h) shutter speed and f stop settings used; (i) type of flash equipment used if photographs were not taken with available light.**
4. **DO NOT SUBMIT: (a) prints or enlargements more than 8 x 10 in size; (b) prints with retouching or artwork, or prints made from negatives with retouching or artwork; (c) composite pictures, multiple printing or montages; (d) framed pictures.**
5. **Contest is open only to amateur photographers. No photographer who earns more than $100.00 per year from photographic pursuits will be considered an amateur.**
6. **All entries must be received no later than midnight July 31, 1969. Mail entries to: WILDLIFE PHOTOGRAPHY CONTEST, Box 2919, Raleigh, N. C. 27602.**
7. **All prints submitted become the property of WILDLIFE IN NORTH CAROLINA and may not be returned.**
8. **Photographs will be judged on the basis of photographic excellence, and the general appeal and interest of the subject. The decisions of the judges will be final. First prize is $25.00; second prize is $10.00; third prize is $5.00; seven honorable mention prizes of two-year subscriptions to WILDLIFE IN NORTH CAROLINA.**

## KNOW YOUR PROTECTOR

**Garland D. Hamrick**

Garland D. Hamrick was born August 16, 1940 in Rutherford County. His parents are Mr. and Mrs. Dewitt Hamrick of Mooresboro, North Carolina. He is a graduate of Tri-High School, Caroleen, North Carolina and attended Gardner-Webb College, Boiling Springs, North Carolina.

He attended Pre-service Training School for Wildlife Protectors at the Institute of Government in Chapel Hill in 1962. He was assigned Wildlife Protector Trainee in Alamance County in January 1963, and Wildlife Protector of Burke County in November 1963. Mr. Hamrick has completed six In-service Training Schools since his initial employment, is a member of the National Rifle Association, and the Southeastern Association of Game and Fish Commissioners, Law Enforcement Section.

Mr. Hamrick is married to the former Martha Ray of Caroleen, North Carolina, and they have one daughter, Michele, who is two years old.

## DIVISION ENFORCEMENT RECORD FOR AUGUST, 1968

**HUNTING & FISHING**

| | |
|---|---|
| Persons checked | 21,848 |
| Total prosecutions | 703 |
| Total convictions | 690 |
| Total cases not guilty | 6 |
| Total cases nol prossed | 7 |
| Total cases dismissed | 0 |
| Total Fines collected | $2,582.60 |
| Total costs collected | $6,788.20 |

**BOATING**

| | |
|---|---|
| Persons checked | 10,562 |
| Total prosecutions | 435 |
| Total convictions | 422 |
| Total cases not guilty | 4 |
| Total cases nol prossed | 9 |
| Total cases dismissed | 0 |
| Total fines collected | $ 830.60 |
| Total costs collected | $3,985.70 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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na, and I learned some things the hard way. One thing was that I was frequently exposed to poison ivy and handled it without any ill effects. On other occasions I was badly infected with some kind of skin poison, and while I thought it was poison ivy, I could not understand why I was unaffected by it at times. Later, I discovered the reason. I learned of poison sumac, and that it is far worse. I was poisoned by it before I knew it. However, in later years I found that people are allergic to poison ivy and other plants at all times. It may be dependent on the age of the plant, or the condition of the person. However, the best remedy I ever found for plant poisons in the old days was old-fashioned lye soap. In later years when I had none of the soap I discovered that lye water is equally as effective. A teaspoonful to a quart is ample. I keep a bottle with a sprinkler cap near my bed and use it when needed. Just sprinkle on and wipe off. Use it as a cleaning agent and whenever the itching is noticed.

As for the snakes, I was taught to watch out for them and look where I put my feet and hands first. I learned early in life that the snake is more afraid of the human than the human is of him. Most of them will scamper away when disturbed, but they will strike in self-defense. I have never known of any case of anyone to be bitten by a snake except when offguard. This applies to snake experts who have handled them for years. You cannot trust a snake. The moral, therefore, is: to avoid snake bite always remain on guard when in areas likely to be infested. The rule is also safety first for other things like, for instance, black widow spiders. An ounce of prevention is worth a pound of cure.

C. C. BYRNE
WINSTON-SALEM

### More Cats

DEAR SIR:

I enjoy your magazine very much as does my 15 year old son. I think it is one of the finest outdoor publications. The August issue is particularly interesting, as it contains pictures of and articles about old acquaintances.

The cover of the Canebrake Rattler brought back memories of days spent near Wagram in Scotland County. During six years my wife and I lived there, I killed two canebrake rattlers in the basement of our home. One was a mere infant, only 25 inches long. The larger was only 63 inches long. He came into our basement to get away from his bigger relatives in the swamp nearby.

I was interested particularly in the statement that the largest specimen recorded was 74½ inches. While living in Scotland County a friend had the tanned hide of a rattler over the mantel of his cabin. The skin and rattles of this monster was approximately 90 inches long—with the head cut off. At the widest point, the hide was more than 20 inches across. I understand this hide was stolen from the cabin, so its size cannot now be verified.

The next point of interest in the August issue concerned the presence or absence of panthers in North Carolina. I would like to add my bit to this discussion also.

About 1955 or 1956, I'm not sure of the year, I was walking up a trail just above the junction of Davis Creek and Bald Creek, when I saw what I thought, in the dim light of early morning, was a tan bear hound. I was only 20 to 30 feet from the animal but he did not seem unduly concerned by my presence. A closer look when I stopped, convinced me that it was a panther. The animal turned and ran up the ridge and I got an excellent view of it for a few seconds before it disappeared into the brush. It was without question a panther. On other occasions, I have seen exceptionally large cat tracks in trails in Cherokee and Graham Counties in North Carolina and in the adjoining counties of Tennessee.

I vote for the panthers being here and I hope they stay. In my opinion there is no more beautiful animal alive.

Yours truly,
JOHN S. SMITH
WILSON

# Between the *Wildlife* Bookends

WILD FLOWERS OF NORTH CAROLINA AND SURROUNDING AREAS, *William S. Justice and C. Ritchie Bell (The University of North Carolina Press, Chapel Hill)*, $7.75.

Published with the sponsorship of the Garden Club of North Carolina and the North Carolina Botanical Garden, this delightful book contains 400 full-color photographs of rare and common, native and naturalized wild flowers, trees, shrubs, vines, herbs and weeds found in North Carolina.

Even for the casual observer, whose knowledge of wild flowers is limited to an ability of identifying dogwood in full bloom, and for the casual reader who likes to look at pictures more than he likes to read, this book is well worth the $7.75 which it costs.

However, WILD FLOWERS OF NORTH CAROLINA is not just a pretty little picture book of flowers. The more serious students of flowering plants, from the week-end hobbyists to graduate students in botany, will find this book a valuable aid to identification and further study. Since each of the photographs in this book is keyed to its corresponding entry in the *Manual of the Vascular Flora of The Carolinas,* it may be used as a colorful supplement to that detailed work.

In addition to the excellent color photographs, the authors have included a glossary and a brief, but informative, discussion of plants. They have also explained with both text and drawings, some of the techniques for flower identification and classification.

As with many good books, the only criticism most readers will have for WILD FLOWERS OF NORTH CAROLINA, is that it is not nearly as long as we would like for it to be.

* * * * * * *

*The Sense of Wonder* by Rachel Carson with photographs by Charles Pratt and others (Harper and Rowe, New York), $2.50.

Although Rachel Carson had planned to expand *The Sense of Wonder* when she died in 1964, the book is by no means incomplete. Drawing from the deep springs of her own sense of wonder, Miss Carson has created a book in which, through words and pictures, she revives in us some of the sense of wonder we have lost since our childhood.

"A child's world is fresh and new and beautiful," she says, "full of wonder and excitement." She notes with disappointment, "It is our misfortune that for most of us that clear-eyed vision . . . for what is beautiful and awe-inspiring, is dimmed . . . before we reach adulthood."

Miss Carson goes on to say she would like to give each child the greatest of gifts, "A sense of wonder so indestructible that it would last throughout life, as an unfailing antidote against the boredom and disenchantments of later years, the sterile preoccupation with things that are artificial, the alienation from the sources of our strength."

With Miss Carson's distinctively clear, clean prose style and with photographs which range from the dramatically scenic to the beautifully simple, *The Sense of Wonder,* revives a sense of wonder in even the most jaded and cynical of us.

*The Sense of Wonder* is a book to help restore to each of us his own delight and awe at the world in which we live. Don't miss it.

Tom Jackson

## BLUES

**• continued from page 7**

But this time, the run was short. A shaft of sunlight broke through the fog, and sparkled along the crests of the waves. The fog scattered quickly, and just as quickly the bluefish left or stopped biting; we couldn't tell which, but it was apparent that the bluefishing was over.

The angler in the brown sweater stopped for another match.

"Didn't I tell you," he grinned. "Gets 'em every time. Just gimme a fog, and I'll get 'em."

He shouldered his rod, and picked up his heavy styrofoam cooler. The tails of over a dozen large blues stuck out of the top like bottles in a drink crate. They probably represented not more than a third of the blues he'd hooked, but lost.

"Yep," I replied, as I happily began gathering up the blues Diane and I had caught. "It gets 'em. It sure gets 'em." ⬍

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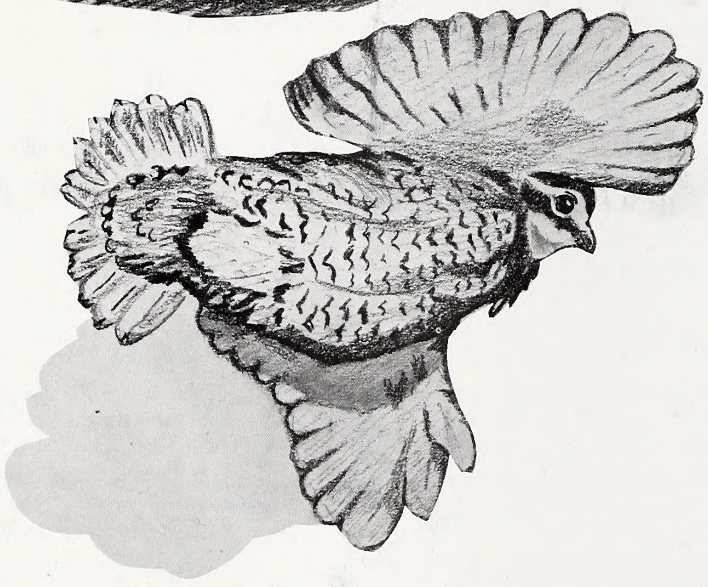
# Tarheel Game Birds

The RUFFED GROUSE, shown here in o spring pose, presents o tricky shot to those who like o rugged hike along with their hunting. This is o mountoin bird.

The CLAPPER RAIL, on olmost neglected gome bird of the morshes, should be hunted on the highest tide of the doy.



One of the most populor Torheel gome birds is the BOBWHITE QUAIL. A good dog is port of the enjoyment of hunting this upland favorite.

An obundont, fost-flying gamester, the MOURNING DOVE, is ovoiloble to olmost every hunter in the State.

LITHO BY THE GRAPHIC PRESS, INC., RALEIGH, N. C.

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# Wildlife IN NORTH CAROLINA

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

* * *

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Wildlife
IN NORTH CAROLINA

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VOL. XXXII, NO. 11 NOVEMBER, 1968

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EDITORIAL STAFF

ROD AMUNDSON _ _ _ _ _ _ _ _ EDITOR
DUANE RAVER _ _ _ _ _ MANAGING EDITOR
LUTHER PARTIN _ _ WRITER-PHOTOGRAPHER
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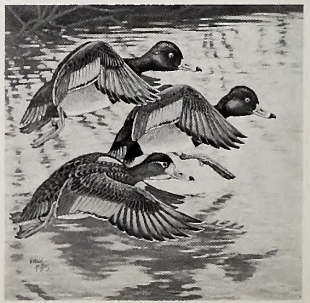


Perhaps a more "identifying" name for this bird is "ringbill" rather than ringneck. The indistinct narrow brown neck ring is barely visible when you have the bird in hand. The white band on the bill just back of the black tip is evident when the ringneck is close at hand. Be sure of the identity of your ducks before you pull the trigger.

Painting by Wallace Hughes.

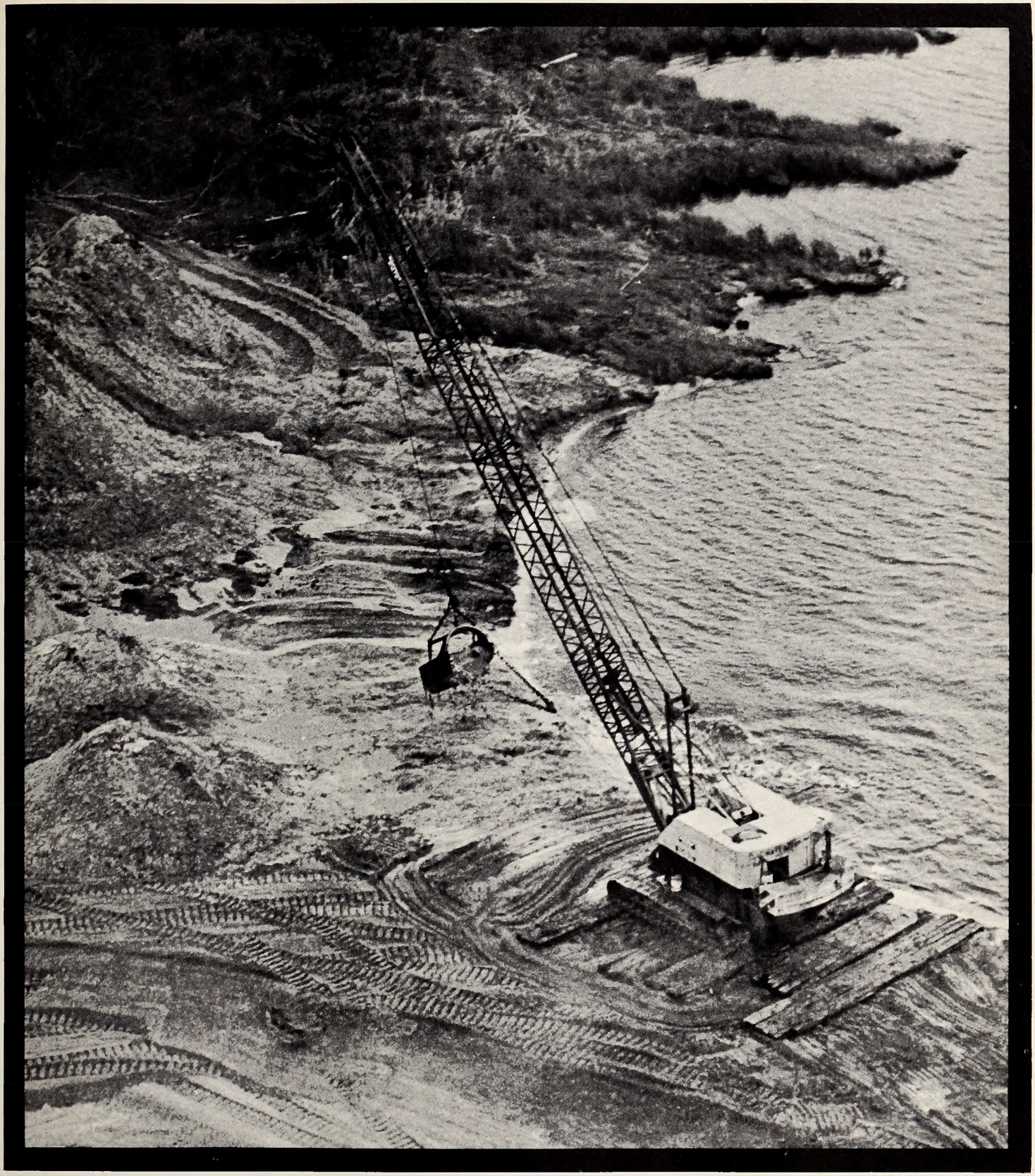


PHOTO BY TOM JACKSON

# "Good-bye"

**Webster states that "good-bye" is a contraction of "God be with ye", and Heaven knows this piece of His creation could use some Divine care. Yes, you and I are aiding and abetting the ripping up of our marshes and wetlands at an ever-increasing rate. With friends like us who say nothing until it's too late, the wetlands need no enemies.**

# Focus on Marshlands

by Jim Tyler

Publications Editor
Research & Development Section
Division of Commercial & Sports Fisheries

YONDER, where fun in the sun is a strong call, lies that stretch of land and water along the North Carolina coastline where salt and fresh waters meet. Call it tidewater, marshlands, or estuaries. Mile upon mile of bold blues, whites and summer greens interrupted mildly with occasional quiet fishing communities is still to be found there, but the present has caught much of the coastland and is fast catching more. The terrain is changing. It is a big area, though—something like 2,000,000 acres.

But before we cut it up to look at a vital segment where much of the remolding goes on, let's take a minute to see exactly what the estaurine system is because, as Dr. David Adams (former Commissioner of the N. C. Division of Commercial & Sports Fisheries, and now staff member of the National Council on Marine Resources and Engineering Development, Executive Office of the President of the United States) puts it, "estuaries usually end up to be what the speaker wants them to be."

The whole estuarine system has actually three major parts—the sounds, the marshlands, and the rivermouths. Of course, the estuary is a dynamic natural item, and weather and sun have great effects. But when the word estuary comes up, the speaker may be talking about one of the major parts, a combination, or all of them.

By far the greatest portions of the North Carolina estuarine system are expanses of open water called sounds (those bodies of water between the mainland and the string of barrier islands known as the outer banks). Some of the sounds are relatively small, and others are huge and seem like small oceans. Marshlands are found around edges of the sounds and along the river mouths and form about 10 percent of the total North Carolina estuarine system. They are sometimes called wetlands because tides come and go over these areas, alternately flooding and draining them. River water flows into sounds contributing to or harming the estuarine system, depending on what it carries.

Don't let the size of the various components fool you, however. The estuarine system is another chunk of Nature that ticks along like a fine clock. If man fouls up one of the components, the whole can suffers.

### Focal Point — The Marshlands

Why focus on the marshlands? Research has indicated that marshlands, although only a portion of an entire estuarine system, can contribute more than 90 percent of the total fertility. Here in North Carolina we do not know exactly how much marshlands contribute to the system, but we do know these areas are indeed vital, and they are areas where man is busily at work, gouging, filling, . . . changing.

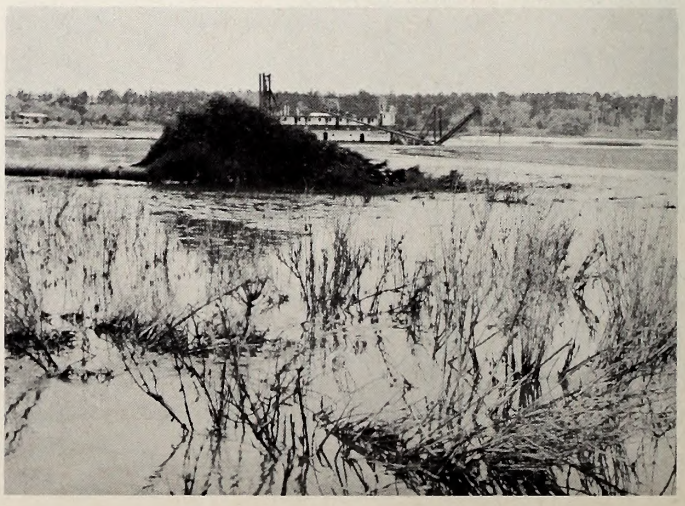
Not all North Carolina marshland is alike; it comes in different colors and shapes, and a stretch of marsh near the Virginia line varies considerably from a stretch near the South Carolina line. Three major types of coastal marshes occur in North Carolina: regularly flooded salt marshes, irregularly flooded salt marshes, and coastal fresh water marshes.

There are about 58,000 acres of *regularly flooded salt marshes* found between the narrow barrier beaches and the mainland. They are regularly flooded with salt water as a result of the twice-daily rise and fall of tide. This type is distributed primarily from the vicinity of Beaufort to the South Carolina line. The most important plant in regular-

**Marshland fishing could diminish drastically if these valuable wetlands are not managed properly. Right, dredges like the one shown, scoop up mud and sand while forming and maintaining channels. This material is piped short distances to shallow marshland and may cause damage.**

PHOTO BY TRAVEL AND PROMOTION DIV.

PHOTO BY RESEARCH AND DEVELOPMENT SECTION



ly flooded salt marsh is cordgrass. It occurs in vast pure stands. The grass averages close to six feet high along the creek banks and diminishes in height away from the creek banks to less than a foot in interstream areas. Bottoms are soft and tidal creeks are extensive, forming intricate drainage patterns.

More than 100,000 acres of North Carolina marshes are flooded only at irregular intervals, mostly as a result of wind and storms. These are the *irregularly-flooded salt marshes.* Flooding water is generally of lower salinity, bottoms are sandier and more firm, and tidal creeks are shorter and less intricately branched in comparison to regularly flooded salt marshes. Needle grass is the dominant plant. It grows about three feet high and is very dense. During periods of heavy winter rain these areas may be flooded with fresh water, while during periods of storm tides they may be flooded with water of saltiness nearly sea strength. During spring and early summer they may become so dry that no standing water can be found.

Coastal fresh water marshes are rarely flooded with salt water; only as a result of extreme storms. In general, the waters flooding these marshes are fresh to moderately brackish. There are about 47,000 acres of this variety in North Carolina. Over one-half of this type found in North Carolina is found around Currituck Sound, the northernmost sound.

### A Going Factory

Our eyes can see marsh grass change colors with the seasons, and that is about it. It resembles a type of desert, but it hums with activity the year around. There are an amazing number of living organisms there, both plant and animal.

The area is more fertile than the richest farmland, and fringe benefits are bountiful. By a fast, plentiful cycle of life, marshland fertilizes itself and produces several crops at one time, without human labor. Furthermore, an acre of marshland does not provide food only for those fish and other life on that acre—there is a constant movement in the estuary so that food produced in one place is transported and can be utilized in another place. Fish you catch in a sound probably owe their existence to some kind of food formed in marshland.

Ducks, geese, clapper rails, and muskrats also fit into the marshland circle of life. "It cannot be emphasized too strongly," writes T. Stuart Critcher, Assistant Chief, Division of Game, N. C. Wildlife Resources Commission, "that valuable resources occur in association with and totally upon these estuarine waters and marshlands." The heron, crab, mink, raccoon, marsh spider, marsh grasshopper and many, many more depend on the marsh.

### The Threat — What Can You Do?

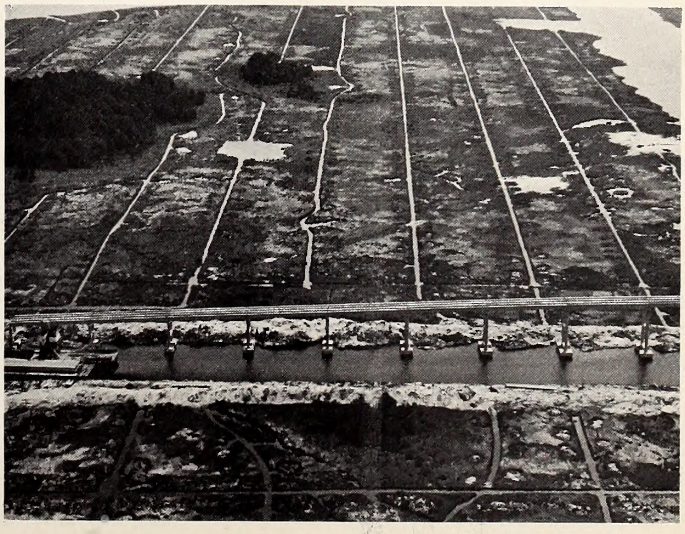
"The estuarine system may be jostled this way and that over the short term, and yet return to a natural equilibrium after the short-term influence is removed. Thus it is that overharvest, severe temperature fluctuations, drastic salinity changes, surges of some pollutants, and other phenomena can wreak havoc with an estuarine system when they occur, but the system retains a remarkable capacity to recover from such effects, IF THE BASIC ENVIRONMENT IS NOT PERMANENTLY ALTERED," Dr. Adams reports.

When you learn that in the last 15 years more than 28 percent of North Carolina's marshlands have been either substantially altered or destroyed, and destruction continues at an alarming rate, what can you do? You might jump up and yell, "good grief Charlie Brown!" But it is hard to remain concerned. This is the go-go era, remember. Do it now, *right now!* And unless a solution or a change is in the makings shortly, well, there are other things to be concerned about.

Here is where any program to see estuaries utilized properly right now is hamstrung. Scientists cannot rush in where "the consequences are so permanent in nature that we cannot afford to be

**Naked strips of sand remain where once was natural marsh, the result of "development" of "waste lands." Perhaps those that conduct this sort of progress are unaware of the damage done to surrounding estuaries. Right, mosquito control ditches and bridge consume more marshland.**

U. S. BUREAU OF SPORT FISHERIES & WILDLIFE, M. FAHAY



wrong." And, presently, there is no State or Federal agency with clear cut responsibility and authority over the entire costlands. As a result, no single agency views estuaries as its sole responsibility and "that which belongs to everyone belongs to no one." Hopefully this will be resolved in the near future.

Recently the State Estuarine Study Committee of the Governor's Interagency Council on Natural Resources presented to the Council a comprehensive work plan recommending ways to more efficiently manage North Carolina estuaries. The Council endorsed the program and Governor Moore has accepted it. The program includes an estimate that it will be necessary for the State to acquire 100-150 thousand acres of estuarine lands and waters to make sure the estuarine system will still be functioning for future generations, and to provide hunting and fishing and other recreational pursuits for the present generation. According to the report, a small technical staff should be created to prepare plans for estuarine use. Governor Moore said, "I have authorized that the funds necessary to implement this program be requested as part of the Department of Administration's 1969-71 budget. Next spring this budget will come up before the General Assembly for its consideration; whether it appropriates the necessary funds and gives North Carolina an outstanding and forward looking program in natural resources administration or merely permits this program to join the many which have died for lack of public interest depends largely on you citizens . . . "

The eight-man Estuarine Study Committee represents the Department of Water and Air Resources, Wildlife Resources Commission, Division of Commercial and Sports Fisheries, news media, UNC Institute of Government, Attorney General's Office, Department of Administration, and The State Planning Task Force.

Dr. Adams, Chairman of the Study Committee at the time the work plan was recommended, sees it this way: "If the people decide that all development is good and the State has no business attempting to regulate it in any way, we simply are not going to have any estuaries as we now know them. If, on the other hand, the people decide that all of the estuaries were to be preserved in their present state in their entirety and that no development were to be permitted, large estuarine areas would be inaccessible to the majority of our people and not properly contribute to the well being of the State. The middle-of-the-road course appears to me to be the best. That is, somewhere there should be an agency whose function it is to continuously review the state of the estuaries. Development should be encouraged in areas where economic opportunity is greatest and damage to the estuarine system least. At the same time, large expanses of shallow water, tidal flats, and marshes, essential to the support of the estuarine system should be protected by whatever means are necessary."

Steps of the Estuarine Study Committee are indeed in the right direction. But those of us who care cannot sink back into our chairs and rest assured that the problem is taken care of, because right now, today, beach houses go up, a new marina comes to be, a small swarm of dredges and draglines work away—so many Davids working on Goliath (an aerial survey on August 17, found 16 dredges and 43 draglines busily at work along the coast). These are tangible changes, maybe good, maybe bad, depending on your viewpoint and your knowledge. But you can see them.

What can you do? "An element of the population must recognize the importance of rational use of estuarine areas and actively work toward preserving some portion of these lands and waters," Dr. Adams says. An individual can always let his government representative, be it a municipal, county, state, or national, know his concern. He can urge his local wildlife club to support the North Carolina Wildlife Federation. He can also join in with a brand new organization, Wetlands and Estuaries for Tomorrow. President H. E. Harrison, Box 400, Plymouth, urges concerned sportsmen to contact him to join the new group pledged to work with State and other organizations to prevent further destruction or alteration of North Carolina's wetlands. "We are dealing with a crucial issue and time is short." Harrison says. And he is right. ◆

# Where To Now For Wetlands?

***EDITOR'S NOTE: Wetlands and Estuaries for Tomorrow is a private, nonprofit conservation organization, affiliated with the North Carolina Wildlife Federation, and dedicated to the following principles:***

"TO INSURE THAT OUR WETLANDS AND ESTUARIES AND THE RESOURCES AND BENEFITS THEREOF SHALL NOT VANISH FROM THE EARTH BUT SHALL BE PRESERVED FOR OUR USE AND ENJOYMENT AND FOR THE USE AND ENJOYMENT OF THE GENERATIONS OF TOMORROW, WE THE MEMBERS OF WETLANDS AND ESTUARIES FOR TOMORROW PLEDGE OUR EFFORTS:

*"to promote the conservation, restoration, management and wise use of all wetlands, estuaries and related natural resources;

*"to prevent the destruction or alteration of existing wetland and estuarine resources;

*"to reclaim, restore and enhance those wetland and estuarine resources which have already undergone alteration;

*"to promote sound, scientfic management of these resources;

*"to engage in activities which will bring about a better understanding of these resources and the ecological balances therein;

*"to promote and support adequate laws to protect

these resources and to prevent their exploitation;

*"to demand that laws pertaining to these resources are enforced firmly and impartially;

*"to encourage an acceptable code of ethics in regard to the use of wetland and estuarine resources;

*"and to inform, to educate and to stimulate the public mind toward more constructive attitudes in regard to the aesthetic, recreational and economic value of these resources."

The following statement, prepared by H. E. Harrison, Jr., of Plymouth, President of Wetlands and Estuaries for Tomorrow, was presented by Turner Battle, Executive Director of the North Carolina Wildlife Federation, to a federal estuarine study committee at a hearing in New Bern last summer.

Gentlemen: On behalf of Wetlands and Estuaries for Tomorrow, let me express my appreciation for the privilege of being allowed to present to you, through Mr. Turner Battle, the following comments relative to the conservation of our estuarine resources.

No informed discussion of the estuarine resources of North Carolina can take place among men who are not familiar with the information contained in two important recent publications: (1) PROCEEDINGS OF THE INTER-AGENCY COUNCIL ON NATURAL RESOURCES, November 21, 1967 and (2) A COMPREHENSIVE ESTUARINE PROGRAM FOR THE STATE OF NORTH CAROLINA, a report prepared by the Estuarine Study Committe and presented to the Inter-Agency Council on Natural Resources in May of 1968. Both of these publications are available on request from the Division of Sport and Commercial Fisheries of the North Carolina Department of Conservation and Development. I know of no other place where so complete an accumulation of up-to-date information relative to the state's estuarine areas is available in condensed form. These two publications are, I believe, the definitive ones and I assume that all of you are already familiar with them.

In the event that no copies are available for reference here today, I have appended to my statement copies of each. I have further appended five relevant articles from WILDLIFE IN NORTH CAROLINA, the official publication of the North Carolina Wildlife Resources Commission. (Allen, Durwood L., "Natural Resources and the Expansionist Philosophy," XXXI, No. 10, October, 1967, pp. 4-7 and XXXI, No. 11, November, 1967, pp. 4-6; Davis, Chester, "Waves of Development Threaten The Tidewater," XXXII, No. 3, March, 1968, pp. 4-7; Florschutz, Otto, Jr., "Multiple Use of Salt Marsh Impoundments," XXXI, No. 11, November, 1967, pp. 12-14; Shuster, Carl N., Jr., "The Nature of a Tidal Marsh," XXXI, No. 7, July, 1967, pp. 4-7 and XXXI, No. 8, August, 1967, pp. 12-13; Wallace, James C., "Our Changing Environment," XXXI, No. 6, June, 1967, pp. 6-12). I will not read either of these, but have included copies of them so that you may study them at your leisure.

Since there is very little which I could say about estuarine resources which would add to the information contained in the two reports from the Inter-Agency Council on Natural Resources, I would like to use the time which you have made available to me to editorialize briefly and to clarify the attitude which Wetlands and Estuaries for Tomorrow takes toward estuarine resources.

Someone once said that "a politician thinks of the next election; a statesman of the next generation." Each time I see the Commissioners of one of our coastal counties rush headlong into a marsh drainage project; each time I hear a representative of a "conservation" agency speak of a natural resource in terms of the industry which can exploit it; each time I read the promotional accounts of another "vacation paradise" which has been gouged out of a quiet marsh, I wonder just how many of our public officials are politicians and how many are statesmen. Each time I strip a slimy handful of wood fiber from my fishing line and, in disgust, pack up my fishing tackle, I wonder where our statesmen are. Each time I see a raft of fish drifting belly up on a polluted river, I wonder where our statesmen are. Each time I see another of those ugly orange signs erupt like a boil on the face of our coast to warn us "Polluted Waters, Shellfishing Prohibitied," I wonder where our statesmen are.

PHOTO BY RESEARCH AND DEVELOPMENT SECTION

**Improper planning when changing the marshlands harms fish, oysters, and always, finally . . . you. Think about it.**

If you think I am the only one who wonders where our statesmen are, just look around you. Count the number of organizations which concerned individuals have formed, like bucket brigades, to fight pollution and waste and destruction of our natural resources in this state and across the nation. Look at Ducks Unlimited, look at Wetlands and Estuaries for Tomorrow, look at the hundreds of wildlife clubs which make up the state Wildlife Federation. All of these organizations have been formed by men and women with a common interest: conservation of our natural resources. All of them are against the pollution and waste and destruction which is sweeping across the natural resources of our land like a rampaging fire. Each of these organizations is a bucket brigade fighting this fire. But bucket brigades are not

enough; they can only supplement the efforts of a trained and organized "fire department" established and directed by the government.

If you think I am the only one who believes our government conservation agencies are sometimes directed more by politicians than by statesmen, you should spend one Saturday afternoon at a crossroads country store. Squat in the shade of the inevitable China berry tree and listen. Ask questions if you like. You will find that most of the men gathered there have more than just a passing interest in natural resource conservation. The information available to them may be limited to an intimate knowledge of a short stretch of the nearest river, their understanding of conservation problems may be likewise limited and they may not be as articulate as the professional phrase makers whose oiled and polished metaphors excuse the political and economic expedients of our day. But in brief and pointed comments, which most of you will readily understand, they will tell you that they are concerned about our natural resources—both for today and for the next generation.

Please do not misunderstand me. I am not saying that all government agencies are manipulated by politicians; I am not saying that the government has neglected its role in the conservation of our natural resources; and I am certainly not suggesting that any cane pole fisherman knows more about conservation than a resource agency biologist. However, I *am* saying that I think, and that a great many hunters, fishermen and other sportsmen think that the efforts of both state and federal government have, to date, frequently been insufficient.

If the old saw "an ounce of prevention is worth a pound of cure" has ever been true, certainly it is all too true of today's conservation needs. Unfortunately, however, many of our agencies are administering not the ounce of prevention, but the pound of cure—and in many cases 10 pounds of cure would not be enough, nor 100 pounds.

Most of us are aware of the multiple problems which any natural resource conservation agency faces. Most agency heads, if asked to list their problems, would begin the list with "insufficient funds" and end it with "not enough money." Certainly the financial needs of our conservation agencies are great and most of us are aware of the complexities of government budgets and of the struggle for funds. Too many times, in the past year, the past five years, the past 20 years, when the cookies were passed out, our conservation agencies have been last in line and have received the crumbs.

If a fire should break out in Croatan Forest this afternoon and sweep, uncontrolled, toward New Bern, the citizens of this town, the City Council, the Fire and Police Departments and the concerned state agencies would all drop the work at hand and turn out to fight the fire which could destroy their property and their lives. If the threat became more serious, it is possible that the Governor would call out the National Guard and request help from nearby military bases. Application for emergency assistance would be made to the federal government and New Bern might be declared a disaster area. We all hope this never happens.

But, gentlemen, a fire has broken out. It has been burning for a long time and our efforts to extinguish it have been little more than puny swats with a damp gunny sack. Now it is nearly out of control. As we sit here today the Neuse River is figuratively burning, and with it Pamlico Sound and the wetlands and estuaries which surround it. And with them the Cape Fear River and the Alligator River and all the rivers and sounds along our coast. Again, I refer you to the findings of the Estuarine Study Committee of North Carolina's Inter-Agency Council on Natural Resources: in the past 15 years 28.5% of our coastal salt marshes have been altered by ditching, dredging and filling operations alone. Although statistics describing the physical alteration of our marshes are avaliable, no comprehensive studies have been made which indicate how much insidious damage —yet undetected—has occurred as a result of chemical and other types of pollution.

The total damage already inflicted on our estuarine resources cannot be cited statistically, but those of us who hunt and fish in these areas know the damage is great. Those of us who go there seeking food for our souls just as much as those of us who go there seeking food for our bodies watch the source of our harvests diminish, and we are troubled.

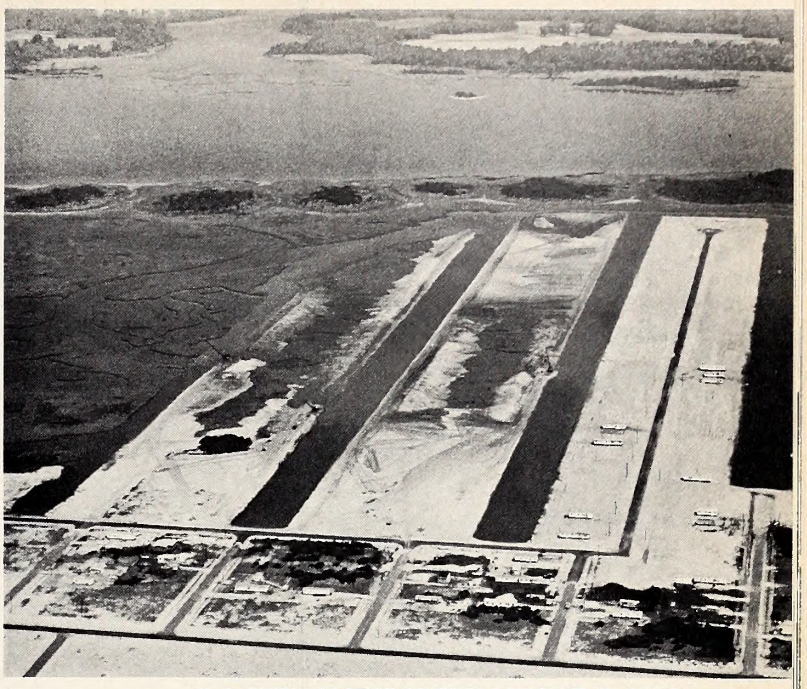
You asked that I express my opinions on "optimum use of estuarine resources, their value, damages incurred due to estuarine pollution and how the estuarine resources should be managed." I think I have clarified my feelings on damages incurred due to estuarine pollution. Just to be sure, let me state it simply: the damages which we have already inflicted on the estuarine resources in North Carolina are disgusting in scope and reflect an attitude which borders on criminal negligence. With all our sophisticated technology, our "progressive" civilization, and our astounding sources of power, we are little more than a nation of barbarians despoiling all that we touch and touching everything within our reach. We have learned to subdue the earth and to extract from it food and fiber and mineral to suit our needs, but I fear that we have not learned to respect the earth—but respect it we must if we are to survive.

The value of our estuarine resources? I have seen reports which indicate that some of our estuarine areas produce more protein per acre than our best farm lands. Well, how much is an acre of prime farm land worth? But we can't really use that as a guide, can we? We could never farm an estuary. Why don't we contact a local real estate developer and price an acre of marsh along a developing waterfront? If we take his sale price as a guide we might conclude that estuarine acreage is much more valuable than any farm land we've ever seen.

On some parts of this very coast a 50' x 150' lot dredged—perhaps illegally—from the bottom of one of our sounds and piled on top of a choice bit of marsh sells for as much as $5,000. On the other hand, if we do not allow developers to alter the marsh, if we simply ask the going price of undeveloped marsh, it may sell for as little as 20 to 30 dollars per acre. The value of marshlands and of all estuarine resources depends—like most values—on the law of supply and demand. At the present time the supply of marshlands is quite limited, but there seems to be no limit to the demand for this property. Yet, I think I can safely predict that we in North Carolina have hardly seen the beginning of just what the demand for waterfront property will be in a few years.

Just what, then, is the value of our estuarine resources? I have not really answered that question, gentlemen, nor will I be able to answer it in dollars and cents terms. Let me ask you what is the value of two hours alone, on a cold November morning, in a blind you have built yourself, with a gun long familiar to your hands? Let me ask you what it is worth to see a flight of mallards swing out of the sunrise, beat up against the wind, set their wings and drop in your own special pothole? How much is it worth to us to be able to sit down to a well-spread table loaded with fresh oysters and bowls of steaming clam chowder? What value can we place on a 25-pound fish, 50¢ per pound in the local fish market or $50 per pound which a good many sportfishermen might be willing to invest in the same fish? What is it worth to any one of us who is able to hear autumn come in with the first big flight of Canadas? Let me ask you, gentlemen, what is it worth to us to enjoy these things, and what is it worth to us to insure that our children and our grandchildren shall enjoy them? Only when we have answered these questions, we will know the value of our estuarine resources, for their true value must be measured not in square feet of building space, not in pounds of fish for the market, not even in the number of recreational facilities which they will support; their value must be measured as we measure ourselves. Henry Thoreau once said, "In wildness lies the salvation of the world." I believe he was right. When we no longer value the freedom of the wary black duck, when we no longer care about the color of a sunrise, when we no longer are willing to fight for the rights of a striped bass to feed and to spawn and to pursue its life according to its nature, then we no longer value wildness and freedom in ourselves. When this happens our concrete encased spirits will no longer care if the air we breathe and the water we drink and the food we eat is tainted with our own wastes. I hope this day never comes.

If we are to forestall this dark day, we must immediately take steps to properly manage our estuarine resources. Toward this end, Wetlands and Estuaries for Tomorrow has already passed a resolution which supports the recommendations of the Estuarine Study Committee as a step in the right direction.



U. S. BUREAU OF SPORT FISHERIES & WILDLIFE, M. FAHAY

**What do you see? Short-term gain, or long-term loss? Dollars and cents or dollars and nonsense? The marshes are going.**

We hope, first of all, that the state and federal governments will establish agencies whose sole function will be to safeguard our estuarine resources and to oversee their proper management.

Secondly, we hope that the state and federal governments will understand from the beginning that these agencies cannot operate unless they are properly funded. A number of suggestions for financing estuarine conservation have been outlined in the Estuarine Study Committee's report. Additional sources of revenue will probably be suggested as our estuarine problems are studied in greater depth.

Third, we hope that the state and federal governments will initiate land acquisition projects as soon as possible. We further hope that, as soon as these lands are acquired, trained personnel in the appropriate agencies will be encouraged to institute *planned* management programs which will protect our estuarine resources while allowing maximum human use.

Certainly we do not want to ban men from the sounds and marshes, nor do we believe all estuarine areas should be preserved in their present state. We do believe, however, that *substantial* portions of these areas should be set aside for the public of today and for the generations of tomorrow. We believe that all estuarine areas should be classified and managed according to their best use—much as a city is zoned for residential, industrial and other purposes. Certain estuarine areas should be designated for housing, other areas for industrial purposes, other areas for recreational development only and still other areas should be preserved in their present state and protected from any alteration whatsoever. Through a planned system of clas-

sification—and I cannot emphase the term "planned" too much—we can derive the maximum resource use with the minimum resource depletion.

Fourth, we further believe that strong federal regulations to control the application of pesticides should be enacted. We can no longer afford to allow the indiscriminate use of these dangerous materials by anyone with money enough to buy them. We believe these materials are beneficial to man and necessary to today's specialized farming techniques. However, it seems apparent that the use of these materials has become so widespread and that their effects are so complex—directly and indirectly—that only highly-trained and qualified persons should be allowed to apply them.

Finally, we believe that stronger state and federal water and air pollution control regulations should be enacted. We have made some steps toward water and air pollution control in North Carolina, but conditions on many of our rivers and in many of our towns indicate that we have not done nearly enough.

Even if we had sufficient time to prepare a detailed outline of what we in Wetlands and Estuaries for Tomorrow consider the best use of each estuarine area in North Carolina, we could not have presented it in the brief time available at this meeting. However, I hope I have at least made clear to you some of the broad concepts which we believe should be considered in a comprehensive estuarine program, and I certainly hope I have left no doubt in your mind as to our attitude toward the present estuarine program in North Carolina or our general attitude toward the conservation of our estuarine resources and of all our natural resources.

"A politician," gentlemen, "thinks of the next election; a statesman of the next generation." I hope that we shall soon see an army of statesmen positioned to conserve and protect our estuarine resources—and all of our resources. I firmly and honestly believe the survival of our own species depends on it as much as does the survival of the smallest crustacean or the most fragile microorganism.

Thank you.

H. E. Harrison, Jr.
President
Wetlands and Estuaries for Tomorrow
Box 400
Plymouth, North Carolina 27962

EDITOR'S NOTE—Responding to increasing pressures on the nation's estuarine areas, the U. S. Forest Service has issued the following policy statement showing their concern for estuaries and their interest in estuarine conservation.

*It shall be the policy of the Forest Service, Southern Region, to retain, safeguard, and preserve National Forest owned estuaries, and, within its jurisdiction, take steps to protect these valuable biological and recreational areas from encroachment, pollution, damage, or destruction by man-made forces. Furthermore, the Forest Service shall cooperate with interested agencies and organizations in all reasonable efforts to restore and rehabilitate National Forest estuaries presently in a damaged condition. The Forest Service shall observe such principles of watershed management, pest control, and land use development on National Forest holdings within the watersheds of estuaries as are necessary to protect such estuarine areas regardless of condition or ownership status.*

This policy will guide our activities pending further direction from the Chief and until the Secretary of Interior makes his report to Congress as authorized by the recently passed Estuarine Act.

A multiple use supplement on estuaries is in preparation. Pending issuance of same, be guided by the above policy and the following considerations when concerned with estuarine management:

—Permit no pollution, dumping, filling, dredging, ditching, or damming of estuaries.

—Construct no dams, dykes, road fills, culverts, or other barriers which materially alter the free and natural flow of fresh water to the estuary, or the ebb and flow of the tides, or block anadromous fish from spawning runs.

—Use only short-lived (soft) Pesticides within the watersheds of coastal streams.

—Do not dispose of by exchange lands that include or border on estuaries—attempt to acquire estuaries when justified in conjunction with other objectives.

—Initiate or permit no watershed developments without a careful evaluation of their effect upon the periodic or seasonal flows of fresh water affecting the saline balance of estuaries.

—Cooperate with State, Federal, and local agencies or organizations in all reasonable projects for estuarine protection, restoration, rehabilitation, or research.

—Permit such recreation developments as encourage public use and enjoyment of estuaries without physical, chemical, or biological impairment, thereof.

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Waterfowl Outlook Only Fair

When the 1968-1969 waterfowl hunting season opens half an hour before sunrise on November 27, Tarheel hunters can expect only fair success. The waterfowl count in this section of the Atlantic Flyway is expected to be low again this year. Duck and goose seasons are concurrent this year, but there will be a special scaup-only season from January 16 through January 31. (See October issue for details and species identification.)

### Quail, Rabbits Seem in Good Supply

Quail, and rabbits become fair game on November 16, and both species are expected to be in good supply, largely due to favorable nesting conditions last spring and summer. Daily bag for rabbits is five, possession limit ten, and 75 for the season. Quail limits are eight daily, ten in possession, with 100 allowed for the season.

### Check Your Turkey Hunting Regulations

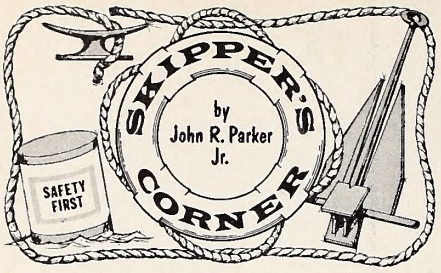
There will be three different turkey seasons during the 1968-1969 hunting period, and turkey hunters should check their hunting regulations to be certain they hunt according to the rules. Included are a winter season and two spring seasons with variations in different parts of the state.

### Woodcock, Wilson's Snipe Seasons Start November 16

Woodcock and snipe, two migratory game birds often overlooked by Tarheel hunters, will become legal game half an hour before sunrise November 16 with a closing date of January 4 at sunset for Wilson snipe and January 19 for woodcock. Bag limits for woodcock are five daily, ten in possession. For snipe the daily bag is 8 with a possession limit of 16. Both species are found in and near wetlands. Both are tricky targets, and both are of excellent flavor.

### WILDLIFE for Christmas?

A subscription to this magazine makes a desirable Christmas gift that keeps on giving. Inserted in this issue is a subscription form for your convenience. A 20 percent discount will be given for blocks of 25 or more subscriptions. Order early for prompt delivery.




THE uninformed boater is quite likely a boater heading for trouble, a citation, or an embarrassing situation. By trouble we are referring to an accident which results in a fatality or serious injury or heavy property damage. A citation might or should result when an uninformed operator goes through a "no wake" zone at planing speed, for example. An embarrassing or uncomfortable situation could develop, for example, if the fuel tanks were not topped off or if you beach a boat stern-to and return to find her flooded and yourself stranded.

Carelessness, lack of attention, being uninformed, are a few of the ways of describing what caused this boating mishap or that death. But we cannot be sure that all accidents could be prevented. However, there is an abundance of information for us boaters to digest. Information could, if put into practice, at least reduce boating accidents.

By this time if you are thinking that you can't get it all from books, you are quite right. But combined with actual practice, a good session with the printed word now and then can round out your seamanship.

If you feel that the coming winter would also be a good time to brush up on the legal aspect of boating, then drop us a line and request one or more of these pieces of literature.

- Pleasure Craft, Federal Requirements for Motorboats (are virtually the same as State), USCG 290.
- Ventilation Systems for Small Craft, CG 395
- Recreational Boating Guide (Note: *order forms only,* this is an excellent Coast Guard publication which can be purchased from the Government Printing Office, Washington, D. C. for 45¢).
- Marine Sewage Treatment Devices and Holding Tanks
- The Uniform State Waterway Marker System in N. C.
- Rules of the Road (a reprint of a past "Skipper" column)
- Drown-Proof Yourself (A "Wildlife" magazine reprint)
- Agents Authorized to Sell Charts (a list)

### Maps Available

Duke Power Company, PO Box 2178, Charlotte, N. C. 28201, has new maps of Lake Norman and lakes Wylie and Mountain Island.

### Fall Reading Material

A recent issue of the popular boating magazine, "Motor Boating," ran an article which listed some good reading material on boating. We are taking the liberty of listing some of the material mentioned and if you elect to do a lot of fireside boating this fall perhaps the list will be of use:

*Care and Repair of Your Outboard* ($1.49, H. W. Sam S. Inc., PO Box 6803, New Augusta, Ind. 46268);

*Small Boating Engines, Inboard and Outboard,* Conrad Miller, ($6.00, Sheridan House, 257 Park Avenue S. New York, New York 10010);

*Electronics Made Simple* (Rev. Ed. $1.95, Doubleday, 227 Park Avenue, New York New York 10017);

*Fiberglass Boats, Construction and Maintenance* ($2.50, Yachting Publishing Co. 50 W. 44th St. New York, New York 10036);

*Life Saving and Water Safety* ($1.00, American National Red Cross, 1955 Monroe Dr., Atlanta, Ga.);

*Piloting, Seamanship and Small Craft Handling* ($7.50, Motor Boating, 959 Eighth Avenue, New York, New York 10017);

*Weather* ($1.00, A Golden Guide, Golden Press, 850 3rd Avenue, New York, New York 10022).

### Tachometer Makes Good Investment

Many boatmen feel that a tachometer is a pretty sophisticated piece of equipment for them to own with a small outboard boat. Such is not the case, say engineers at Evinrude Motors.

A tachometer is one of the most useful pieces of gear any boatman can own. This electronic device measures revolutions per minute of the motor. Any change in engine rpm will be picked up on a tachometer but may not be evident in performance or to the human ear. These changes can then be corrected before they lead to more serious problems.

### Watch That Stern

Unlike an automobile, the back end of a boat responds first to a turn of the steering wheel. Keep this in mind when pulling away from the pier, says the Evinrude News Service. Many boats and piers bear scars because the driver forgot that the stern swings in response to a turn. Either push the boat away from the pier before accelerating, or leave the pier at a slight angle until clear. ⬍

**"Laugh you idiot, but I've got the paddle!"**

# A History of Market Hunting in The Currituck Sound Area PART 1

by Jack Baum
Elizabeth City, N. C.

WHEN the expression "God's Country" was first used many years ago it's just possible the originator of the expression came from Currituck County and was thinking of the fabulous fishing and wild fowl hunting on the Currituck Sound area with its creeks, ponds, points, and wealth of natural food.

Perhaps he was also thinking of a land so healthful and men so enduring that old timers survived many years after earning the sobriquet. To lend credence—one of them giving much information for this article is 80, his mother 98, his uncle reached 104, and other relatives were active when well up in their 90's.

There are many of the old timers around in the area today who have volunteered a wealth of information. They recall their own market hunting experiences along with observations of the times, and memories from their market-hunting fathers and grandfathers. Their information makes up the body of this article and their help was invaluable.

AN exact date for the origin of duck hunting for the market in the Currituck area is hard to establish. There is little doubt that wild fowl was an important item for the table for many generations. John Lawson in his *History of North Carolina,* published from notes made in his journal while traveling through the Albemarle area in 1700, notes in telling of Indian life: "Thus they go and fire the woods for many miles, and drive the deer and other game into small necks of land and isthmuses where they kill and destroy what they please . . . and all small game, as turkeys, ducks, they commonly kill with bow and arrow, thinking it not worth throwing powder and shot after them."

A century later, there is a written record of Samuel, brother of Abraham and Josephus Baum, being accidentally killed by a falling muzzle-loader, in the year 1827 in the marshes now owned by the Pine Island Club. All three of the Baums hunted for food well before the War Between the States, but no written record has been found to definitely

**Left, Josephus Baum, ". . . has probably sent more ducks to their account than any other man living . . . killed on December 9th, 120 ducks, 30 geese, and 3 swans." *Grandfathers Tales,* 1901. Below, Dr. George Sears of Boston, and guide Sam McHorney enter a Pine Island marsh blind about 1916.**

indicate that they shipped ducks north before the war.

Probably the earliest written record of market hunting in the area, tells of a man named Edgar Bourroughs, who lived on Long Island on Back Bay, barely over the Virginia-North Carolina state line. In 1856 Bourroughs employed 20 game hunters to shoot wild fowl in Back Bay for the market. The game they killed was hauled to Norfolk by wagons once each week and piled in the warehouse of Kemp and Bucky. It was packed and shipped north each Wednesday. Old records note that 23 kegs of gunpowder, and shot in like proportion, were used by his men from the beginning of the season through December 30, 1856.

Since the Chesapeake-Albemarle Canal between Norfolk and Currituck Sound and on through the sound to North River connecting with the Albemarle Sound was completed in 1859, it seems reasonable to assume ducks in large quantities were shipped north after this date. A few years later, the Norfolk & Southern Railroad was built through Elizabeth City with a spur line to Munden Point. Truxton Midgett, 80, who retired as LCDR USCG ("Captain" by his friends) lives at Kitty Hawk, and tells of his father taking ducks for shipment in a sailing "sharpie" through the canals before the railroad came to Elizabeth City.

Mr. Midgett was told by his father, Franklin Harris Midgett, that due to the scarcity of material for making shipping barrels he often bulked the wild fowl in the hold of his sharpie. It was not uncommon for the entire hold of his ship to be covered with a layer of ducks, one of ice and another with ducks until they reached the deck hatches. With a hold full of fowl, he would then sail to Buck Island in North River, between Currituck and Camden counties, where his boat would assemble along with several more, (sometimes as many as ten) and hook onto a steam tug to be towed through the new canal to Norfolk where the game would be packed, iced and shipped to the northern markets. All other sailboats in the tow were freighters loaded with either fish, oysters, lumber or game.

At that time not only did Elizabeth City not have a railroad, it had no ice plant. Ice for shipping ducks and fish was frozen in winter in Maine, cut from ponds, with hand saws, loaded on barges and towed by tug to Elizabeth City where it was stored on the bottom floor of a three-story building beside the Pasquotank River at the foot of Mathew Street (now Colonial Avenue). This building later was occupied by the old firm of N. G. Grandy and Company.

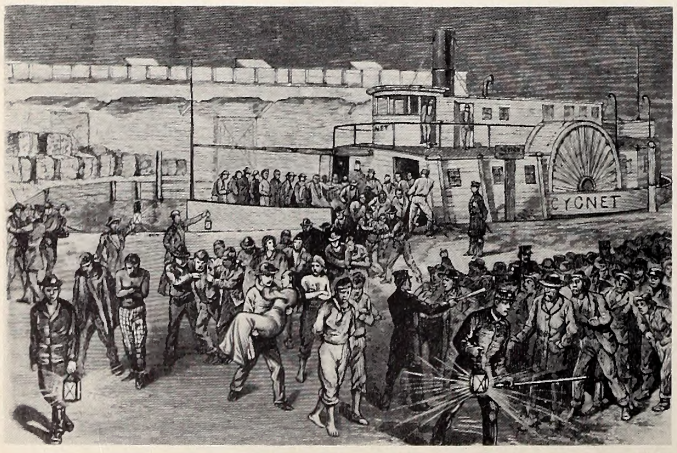
From Elizabeth City the game was shipped mainly to Baltimore and New York, but some went also to the commission merchants at Philadelphia and Washington. Their best clients were swanky hotels and restaurants. From Poplar Branch, Narrow Shore, Church's Island and Knotts Island, waterfowl were shipped to the market first by a side-wheel steamer, the *Cygnet,* and later by two sternwheelers, the *Comet* and the *Currituck.*

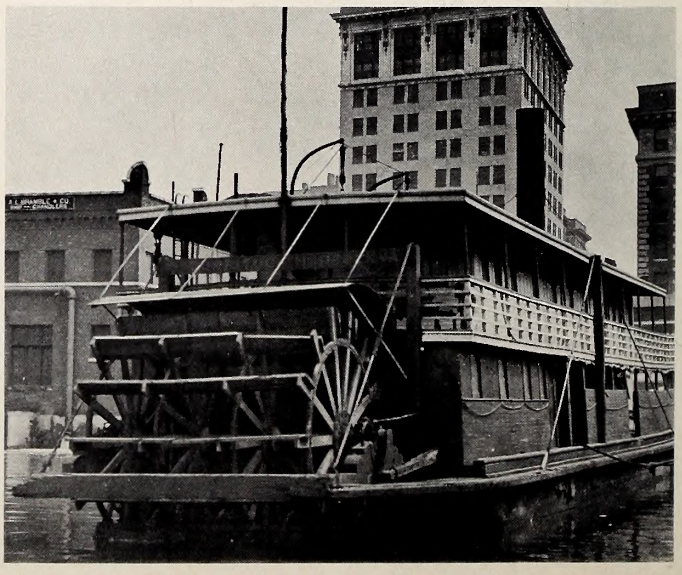
AN old diary tells of a family making a trip on the *Comet* from Poplar Branch to Munden Point in 1907, on their way to Norfolk, to see the first Jamestown Exposition. She plied these waters several years earlier in 1896 according to an old-timer. She was condemned about 1915 and the route was replaced by the newly built steamer *Currituck.* The old steam engine and the large steering wheel were removed from the *Comet* and installed on the new steamer. She had eight staterooms, a saloon, and other accommodations for passengesr on her upper deck. The lower deck was used for freight.

The *Cygnet, a* side wheeler, in use in Currituck waters as far back as 1878, was probably built in 1869 and may have started her voyages through the sound as soon as commissioned. These three steamers started many thousands of wild fowl on their journey to the northern markets.

The *Currituck* went straight through the Chesapeaks-Albemarle Canal to Norfolk while the *Comet* connected with the Norfolk & Southern Spur line

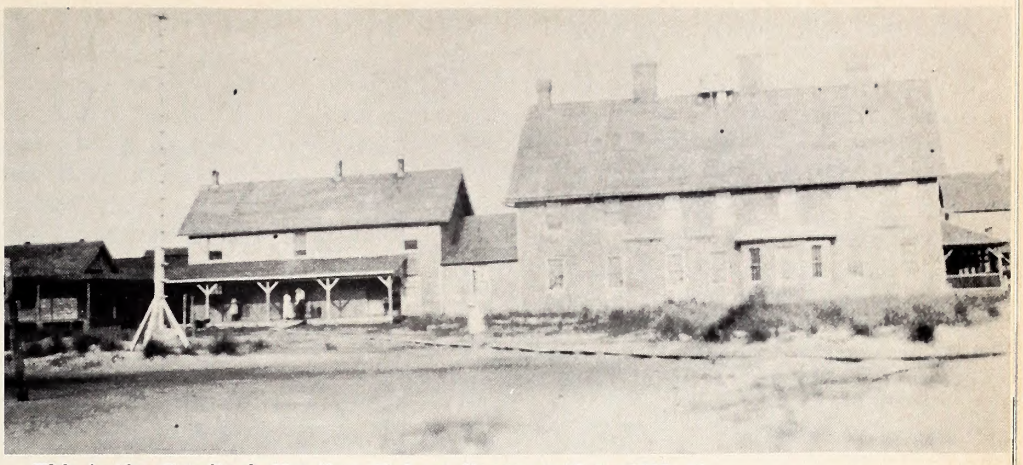
**The steamer "Cygnet" one of the earliest steam vessels to operate on Currituck Sound, unloads ship-wreck survivors. Right, the stern wheeler "Currituck" replaced the "Comet." Thousands of waterfowl were shipped to market on these vessels.**



PHOTOS COURTESY THE MARINERS MUSEUM, NEWPORT NEWS, VA.

**The Skipper of the "Currituck," Captain Lloyd Doxey, took many ducks to Norfolk during hay day of market hunting.**



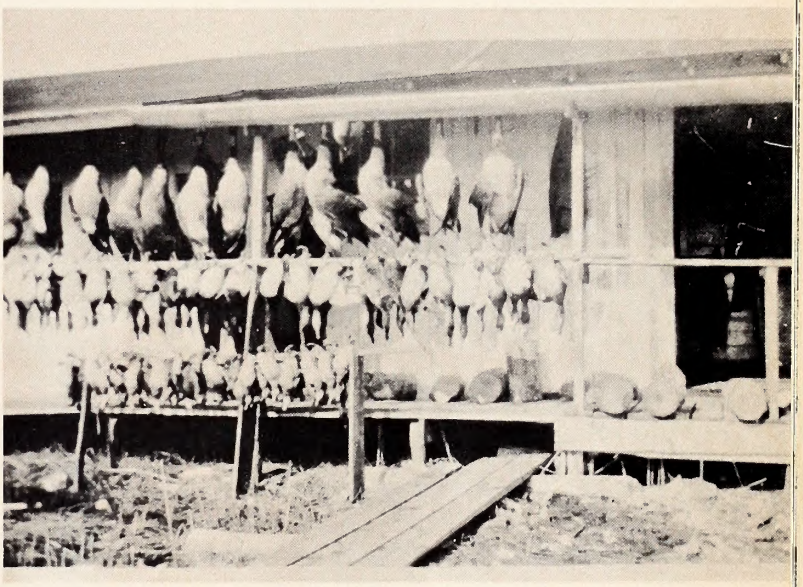
**This is the Currituck Hunting Club as it appeared in 1919. It was the center of much market and sport shooting. Below, a day's bag at the Wright Brother's Camp on Polk Island.**

from Norfolk to Munden Point on the upper reaches of Currituck Sound in Virginia. There is a record of ducks being shipped "by steamer" to Norfolk from Church's Island in the mid-1880's.

When flour and sugar barrels were available, they made an ideal means of packing the game for shipment but in many cases boxes of various sizes had to be constructed by the hunters. Captain Lloyd Doxey, 78, who captained the *Currituck* for a number of years, related that as a boy he often saw his father and the late State Senator Samuel Beasley, who bought game at Poplar Branch Wharf shortly after the turn of the century, ship as many as 200 boxes or barrels of game on a single day. At the Poplar Branch Wharf, the game was hung in the ice house until the day of shipment when it was packed around a 50-pound cake of ice placed in the barrels. Blanton Saunders recalled seeing his father, now 80, and his grandfather, who were both market hunters for many years, place a swan at the bottom of the packing case, then place a goose and four ducks around him, all with their heads placed under their wings.

Game prices varied a great deal down through the years. H. H. Brimely, for many years Curator of the State Museum, when describing a trip to Edward "Uncle Neddie" Midgett's lodge on Church's Island in 1884 gave prices at that time. As he stayed at Uncle Neddie's lodge for several days, and shot out of one of his four battery rigs, his articles gave a very authentic account of methods of hunting, prices of wildfowl, and ways of shipping the fowl north: " . . . approximate prices the gunners were getting for their fowl, in cash on the spot by the regular buyers, all prices per pair except as otherwise noted: canvasbacks, $1.00; redhead, 50 cents; "common ducks", 30 cents, with four ducks constituting a pair; canada geese brought 50 cents each."

Pat O'Neal, present Chairman of the Currituck County Game Board, and a former market hunter (as far back as 1912) has explained why the ruddy (boobie) brought much higher prices later. (Several of the old-timers stated that in later years they brought as high as $2.50 for a pair of two.) He



stated that there was almost no market for boobies until Jasper (Boad) White, a nephew of "Uncle Neddie," who also lived on Church Island, gave a large ruddy banquet at a prominent hotel in New York to convince duck eaters the ruddy had a flavor every bit as good as the famous canvasbacks. He did a good job of selling. The price later sprang from 25 cents for four to as high as $2.50 a pair (two). This price change made an important improvement in the earnings of the hunter.

After the turn of the century, canvasbacks varied from $2.00 to $5.00 per pair, but seldom below $2.50; redheads brought about $1.50; blackheads about 75 cents; ruddies from 50 to 75 cents; marsh ducks, 75 cents; swan, 75 cents; and geese from $1.00 to $1.50. A man had to work hard to make a living at these prices, but some of them did it. The largest single kill of ducks for one day was made by two brothers, Russel and Vanburen Griggs. They killed 892 — and they were all ruddies.

Next month, author Baum will discuss how blinds were constructed, what sort of setups were employed, and how the old timers managed fantastic hunts at the height of market hunting era.

# TRAPPING THE WILD TURKEY

**by Thad Cherry**
Wildlife Biologist

I stretched myself out as best I could within the crowded confines of the blind, rested my head on a cushion I'd brought along to sit on, and gazed wonderingly at the star-studded black velvet of the night. Just slipping out of sight behind the tree tops was a large full moon—a dull orange pallor with two thin black clouds slicing it into three sections.

Perhaps I dozed momentarily, for when I opened my eyes again the black velvet had faded to gray, the moon was gone, and the stars were barely visible. My blind was built in an old tree lap, whose overhead limbs were now becoming quite distinguishable. A small, grasshopper-like insect slowly and carefully walked his way out on a limb—a black silhouette against a pale gray sky. He stopped and turned crosswise on the limb as if looking down at me, and gave his long thin antennae a thorough wavering exercise. Then he turned and slowly walked back down the limb. He was, no doubt, anticipating his activities for the new day—if insects are capable of anticipation.

Let there be no doubt that I was eagerly anticipating my activities of the dawning day as I raised up from my prone position for a better view of the area before the blind. There was an intense feeling that the next few hours would be full of action and excitement. The next few hours should provide the climax to a lot of planning and hard work.

The Wildlife Resources Commission had, for a number of years, been granted permission to trap wild turkeys on the U. S. Marine Corps Base at Camp Lejeune, North Carolina for stocking purposes. In fact 28 turkeys have been moved from the Base to various wildlife management areas since 1961. At times when the Commission has needed trapping stock, Camp Lejeune has always provided a helping hand. On this occasion, I was attempting some early fall trapping on the big Marine Base.

THE night before—in fact, only a few hours before—Charles Peterson, the Camp Lejeune Wildlife Technician, and I had put in some hard work setting up the cannon net. We made a good set and camouflaged it well. The turkeys had been taking bait regularly for several days near the edge of a small opening at the junction of two woods roads. From the tracks left, it was evident that we had one or more hens and probably some young turkeys, and at least one gobbler taking the bait—possibly two separate flocks. There was not much left of the night after we finished setting up the trip.

It seemed like I had just dropped off to sleep when the clock made its presence obvious. I first hoped that it had gone off too soon, but it hadn't—it was 4:30 a.m. I slipped into some field clothes, stopped by an all-night restaurant for a light breakfast, and drove to the base. After a 10-minute walk from where I parked the Scout and trailer-load of crates, I entered the blind for the anxious wait.

As the gray of dawn lightened, I could imagine the turkeys scattered about, roosting in a grove of pines. They were probably stretching their wings, preening feathers, and craning their necks—carefully inspecting the vicinity in anticipation of gliding down from the roost. As the gray turned to light blue and the first rays of sunlight brightened the tops of the pines directly behind the net, I knew the turkeys should be on the ground, going about their daily routine which should include a visit to the bait site. It was time for action and I was all eyes and ears. Time passed.

**Author Cherry (right) and Charles Peterson, Wildlife Technician, examine a tom turkey trapped for relocation.**

A noise to my left startled me, and I tried to believe it was a turkey "cluck." A sudden fwop, fwop, fwop of wings removed all doubts about what it was, as a turkey flew into the field—still out of sight. My heart banged so hard it's a wonder the turkeys didn't heat it.

My eyes were working their hardest ever to see something when a turkey's head appeared over the weeds to my left. All I could see was a turkey's head—moving steadily toward the bait. As the turkey moved out of the weeds and into the clearing, the great black breast and long curved beard were a sight to behold. As he stood there, carefully inspecting the baited area, another head appeared moving along behind the same weeds, and soon the two stately old gobblers were

standing there side by side, neither one was seemingly anxious to take the bait.

The next few minutes seemed like hours, and my heart slowed down to a pounding gallop. The two gobblers stood there like statues — heads held high and alert. Nothing moved—I dared not bat an eye. Thoughts raced through my mind: Should I fire the net at these two gobblers if they move on in to the bait? Or should I wait for the hens and young turkeys? One of the gobblers moved slowly out to the bait and very cautiously began eating.

It seemed a shame to shoot the net at two old gobblers and risk "spooking" a nice flock of hens and young turkeys. The second gobbler moved to the bait and as he reached down to eat, the other gobbler raised his head high and —"Perk"—he moved just outside the net's range as if to stand guard. I watched for over 30 minutes as the gobblers took turns visiting the bait. Occasionally both would eat at the same time, but usually one stood guard.

Finally both gobblers began taking bait again, and I reached for the wire. Suddenly, both gobblers heads raised high into the air, and holding them high and alert, both gobblers walked quickly back into the weeds— "Perk, Perk, Pock!'

TEN minutes of silence convinced me that I had missed my chance. I shouldn't have hestitated. Two gobblers under the net are worth more for stocking purposes than a flock uncaught. "Perk" I glanced at the bait site only to see the two old gobblers standing *behind* the net. How they got back there I'll never know, but there they stood, turning their heads and looking down —carefully inspecting the pine straw which covered the net and cannons. "Pock . . . Pock!" They both wheeled around and ran— they must have seen the net! Well, maybe the other flock will come.

Some 15 minutes passed, and I was sitting there somewhat dejectedly watching the bait site when those two old gobblers walked back into vieiw. They walked right past the bait site and on out of sight behind the weeds, and I figured that was the last I'd ever see of them. Then both heads appeared over the weeds again—right behind the other, both moving deliberately toward the bait!

This time they went straight to the bait and began busily eating. I felt for the loose wire and battery terminal with my left hand as I watched the old gobblers eating. Both heads were down and they were facing the cannon net, six feet out.

BLAMM!

Before the dust, feathers and pine straw had settled, I was out on the net securing the turkeys. Their next meal would be high in the mountains on a state-managed game land in the western part of the state. ⬍⬍

# The Passing of Little Sam

IT was a good year for rabbit production. It's a good winter for hunting.

But the rabbits around home are safer this winter, and Saturday has lost its music. Little Sam is gone.

He was a scruffy, thicket-torn little beagle that owned our friend Big John Stetson. He was small enough to ride in Big John's hunting coat, but big enough to be boss.

Little Sam was the smelliest dog we've ever seen. Riding with him in a closed car was enough to gag a maggot. He was the only dog that actually smelled better after fighting a skunk. Sam smelled every way that a dog can smell, and a few extra ways that he invented. But he smelled best with his nose, and that's what counted.

He was the slowest of all slow-trailers. A blind rabbit with the gout could outrun him. The older he got, the slower he got. That worked out fine, because a rabbit was never scared enough to hole up. Little Sam sort of lulled the rabbit into a sense of false security. He'd turn that rabbit easy-like, and sing him right back into your pocket.

On our last hunt together, we had 12 fine races with Sam, bagged a few rabbits and educated some others, and there wasn't a cottontail in the bunch that ever drew a deep breath. Being chased by Sam was a very restful occupation.

Little Sam trained at least three small boys. My Chris shot his first rabbits ahead of Sam, and so did Big John's oldest sons, Johnny and Jeff. Sam knew the rabbit, and he knew the boy, and he divided his heart between them.

Sam wandered off down the creek a while back. He was almost 11 years old, and ailing. We like to think he was chasing one last rabbit, and he probably was, because not even the grim business of dying could have been more important to Sam than the happy business of rabbit. We wonder if the last rabbit sensed the honor that was being paid him.

Attaboy, Little Sam; Ho, Sam! Speak to him. ⬍⬍

Conservation Dept.
Winchester-Western Division
Olin Mathieson Chemical Corp.

# On Bluebird Days

by Buddy Harrison

Plymouth, N. C.

TO qualify as a good duck hunter, one must first be married to a patient woman. Then he must be willing to give up sleeping, the good will of his friends and neighbors and any vague claims he might ever have made to being a rational creature. Finally he must be eager to squander his time, money and energy to afford the luxury of squatting knee deep in slush on a marsh bog with the wind piping down his shirt and the sleet freezing on his rain gear.

Wind, sleet and cold—this is the only boon the duck hunter prays for. If he gets rough weather, he's happy. He may drop his only can of pork and beans overboard, snag his waders on a rusty nail, get soaking wet to his armpits and frostbite the fingers of both hands—but he'll never notice these minor inconveniences if the spume is flying and the sleet is horizontal, for he knows the waterfowl will soon be whizzing past him like feathered bullets. And he'll be happy.

But let's face it: On opening day the dogs have been worked for two months to ready them, six dozen decoys have been repaired and repainted, three or four blinds have been built and bushed, he's hauled and dragged what seems like several tons of expensive gear to his camp and has slept poorly—or not at all—for two nights. What happens? The day dawns bright as a new dollar, the temperature is climbing toward 70° and the wind is a puffy three miles per hour southwesterly breeze.

In situations such as this, some hunters cry, some sit fruitlessly in a cramped blind all day, and some even consider taking up golf. A cunning few, however, have been through this all before and have come prepared. They break out their trusty mullet net.

Generally speaking, what's bad for duck shooting is good for netting the fall run of fat, spotted mullet. On the calm, easy autumn days that frequently come to North Carolina, these active fish are usually plentiful around the grassy shallows and sandbars in most estuarine waters of the state. They are also plentiful in salt water and may even be found in water as fresh as Currituck Sound. Commonly called "jumping" mullet because of their curious habit of leaping from the water—sometimes working the water to a froth when a large school moves across a sandbar—they can be sighted most easily on calm days when their splashes are visible for long distances. Although no one knows why these plankton feeders jump as much as they do, biologists have established that these fall "runs" are annual migrations to warmer waters (either moving farther south, or moving to deeper water offshore) and net fishermen have learned that they are fatter, tastier and more plentiful in the fall than any other time of year.

A key link in the food chain for salt water fish, the jumping mullet may also honorably grace an outdoorsman's table.

Since these fish move in schools, the frustrated duck hunter who wants fresh meat for his camp may want to study their movements just as he would watch for favorite waterfowl flyways. Although he may not discern any regular pattern to the movement of these schools of mullet, he will probably soon learn the sandbars and shallows which they frequent and will be better prepared to set his gill net in a choice spot.

Each coastal fishing area has its own pet technique for setting gill nets. Some net fishermen prefer to place the net parallel to the wind, others stretch their nets perpendicular to the wind. Some ignore the wind entirely and set their nets according to the water current while others simply make each end fast to permanent stakes which they use over and over throughout the season.

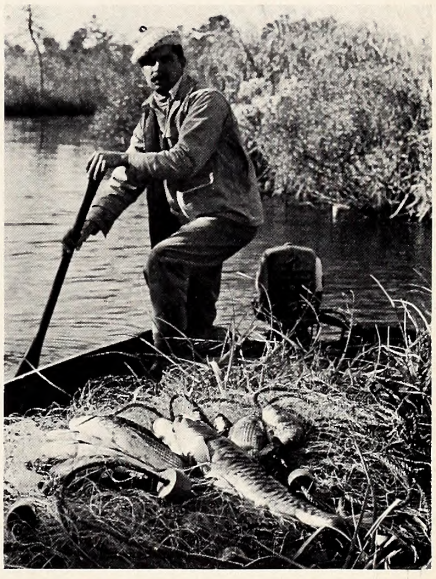
The duck hunter, to whom net fishing is a fill-in for bluebird days, will probably be most successful if he experiments in the area which he frequents until he works out a technique which is satisfactory to local conditions.

In addition to properly locating the net, he should give some consideration to the type of net he is going to use. Until recently, most gill nets were woven of cotton or nylon twine. However, some net makers have now made available gill nets woven of monofilament line. Although more expensive, many fishermen believe the monofilament nets are tougher, easier to handle, less prone to tangle and easier to fish.

Since the duck hunter's interest in net fishing is, at best, a marginal interest, he will probably be happier with the more easily maintained monofilament net. A pre-hung net (with leads and floats attached) should cost around one dollar per yard. Using a four foot deep net with a bar mesh of 1-3/8 inches to 1-5/8 inches, the duck hunter should be able to catch as many one to three pound mullets as he can use with 50 to 100 yards of net.

If $50.00 or more for a net seems like a lot, remember that a good gill net can be used season after season if one takes care of it and should, during its lifetime, provide much more than $50.00 worth of fish. After each trip the net should be cleaned of sticks and other debris which may have lodged in it, checked for snags and holes made by

**Many of the gill nets set along the edges of the sounds can be fished by wading. The author lifts the net high to check it, and comes up with a pan-sized mullet (right). The mixed catch of mullet and carp comes in on a bed of reeds, cut for duck blind camouflage. Not bad for a "bluebird day" (below).**



PHOTOS BY TOM JACKSON

crabs, and repaired. A net which has two foot holes in it will yield scanty catches. Some duck hunters, since they will probably have to buy a commercial fishing license anyway, may even want to sell their surplus catches to offset some of the expenses of their outings. However, the average duck hunter would probably have to spend more time than he has available in order to make much profit with a small gill net.

In addition to the net, he will need an easily maneuvered boat, a sturdy stake and a mallet to drive it down, a little extra rope, an anchor and—if he plans to fish at night—a good flashlight or lantern.

Once the part-time net fisherman has equipped himself and has found a likely looking shallow or sandbar, he drives his stake deep into the bottom. This is very important, for anyone who has spent any time at all near a large body of water knows how quickly weather conditions can change and how rapidly angry wind and waves can sweep away anything in their path. Fastening one end of his net to the stake, he plays the net out of his boat, moving away from the stake as the net plays out. Being careful to "belly" the net in a long arc, rather than pulling it taut, and taking care to keep his floats above water and his leads on the bottom, he can anchor the loose end or he can stake it down. Since an anchor will drag and give with the current, rather than pull completely free, he is less likely to lose his net in rough water if he uses an anchor on one end.

Once the net is set, he will want to dry himself off, rest for a while, listen to a few of the traditional tall tales which are invariably told around duck hunting camps and, finally, return to check his net. After a few checks he will learn the most expedient intervals at which he should check the net. Returning to it too often is tiring and fruitless,

• **continued on page 27**

# How Fish Reproduce PART 2

by J. H. Cornell
Chief, Division of Inland Fisheries
Illustrations by Duane Raver

WE have seen how reproduction occurs among the members of the sunfish family that includes both the largemouth and smallmouth black bass. Now let's take a look at the private lives of some other species and see how they go about providing for the perpetuation of their kind.

Reproduction among the trout is a somewhat different procedure. They build an entirely different type of nest for their eggs. In late August and September, the brook and brown trout start to move upstream from the larger waters into the spring-fed branches. In the smaller streams they are particularly vulnerable to enemies, especially fishermen. At this time of year they must be protected because they are the fish which will produce the young ones for future fishing.

As the water becomes cooler, they continue to move upstream into the smallest spring runs where the water will not freeze during the winter. Their spawning seems to be controlled by temperature too, but they lay and fertilize their eggs when they find water cold enough to suit them rather than warm enough as the largemouth did.

The female trout takes over the job of nest building while the male is busy driving rival males away. On a fine gravel bottom, she presses her tail onto the gravel and moves it vigorously from side to side. The current washes the loosened gravel down stream. As she continues this procedure, a depression is formed which serves as a nest.

After the eggs have been laid and fertilized, she moves to the upper edge of the nest and loosens more gravel to place a protective layer of it over the eggs. Since these eggs are laid in a running stream, it is not necessary for one of the fish to fan them continuously during their incubation. Fresh water reaches them continuously through the gravel. The female does not lay all of her eggs at one time but moves on upstream after completing the first nest and starts the excavation of a new one. The gravel from the new nest helps to cover the first one until an actual mound is formed on the stream bottom. A single female may build several nests in a straight line up the stream. After the nests have all been built, the eggs laid and fertilized, and the nest covered with the gravel, the parent fish have done their duty and go off about other business.

We observed that it takes a definite amount of heat for eggs to develop and hatch. Since these eggs are laid in the fall, they lie in the cold gravel nest all winter and do not hatch out until the water begins to warm up in the sring. The exception to this procedure is the rainbow trout which characteristically waits until very late winter to lay its eggs. Consequently, they have a much shorter incubation period. They hatch out at about the same time the brook and brown trout eggs do in the spring.

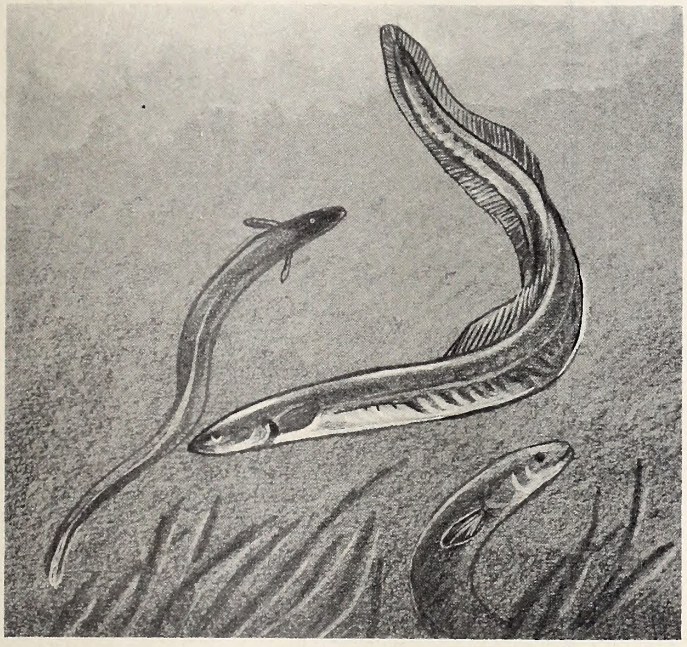
There is another noteworthy difference in the spawning details of the trout. While the brown and rainbow move upstream and cover their nests from the upstream edge, depending on the current to push the gravel over the eggs, the brook trout is different. After the female has laid her eggs and they are fertilized, she covers her nest by pushing gravel over them from all sides of the nest rather than just the upstream edge. This may seem like an inconsequential detail, but also it may account for the fact that brook trout can spawn successfully in ponds having a spring seepage in the bottom, whereas the rainbow and brown trout find it impossible to do so.

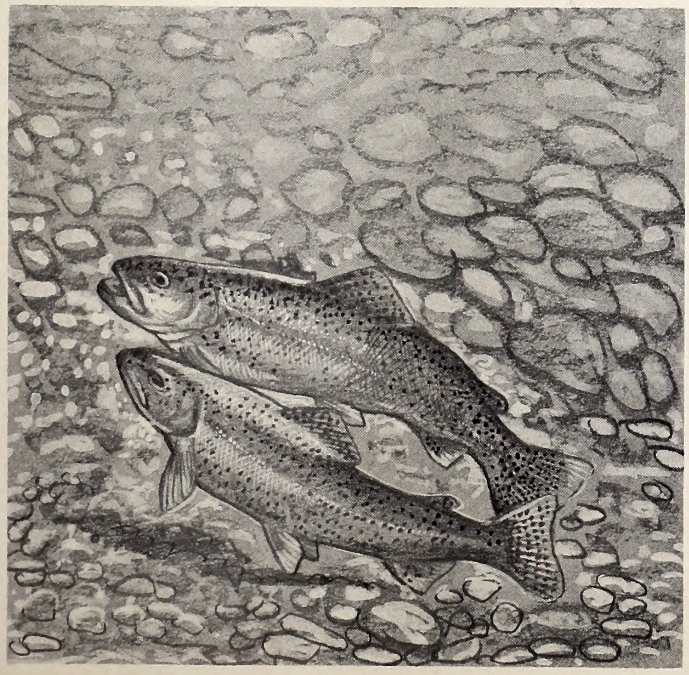
The spawning of the Atlantic salmon is very similar to that of the trout. This might be expected since they are all of the same family. The principal difference is that the salmon are anadromous fishes and spend most of their lives in salt water, only coming into fresh water to spawn. However when they are ready to spawn, they move into fresh-water streams and up to the headwaters sometimes hundreds of miles, there going through the same spawning procedure as do the trout. When the young salmon emerge from their gravel nests, they slowly move downstream and enter the ocean to grow up.

Other important anadromous fishes which come from salt water into fresh water streams to spawn are the shad and the herring. The spawning runs of all the anadromous fishes seem to be controlled by temperature, just as the spawning of the inland fish. In northern Florida the shad moves upstream very early in the spring. The run takes place some weeks later in North Carolina, and still more weeks later in the New England states. However, the spawning runs all seem to take place at approximately the same water temperature.

Not all fish build nests, however. One of the best examples is the striped bass or rock of the Atlantic Coast. This is an anadromous fish, living in salt or brackish water most of the time, but swimming far up fresh-water streams in order to spawn. They start moving upstream when the water temperature is in the 50's, and the first eggs will be laid promptly when the water temperature reaches 60 degrees. Many people have observed "rock fights," and this is the actual spawning act.

Male rock are old enough to reproduce at the end of their second year, but most females are not mature until their fourth year when they have reached a length of about sixteen or seventeen





**Three quite different types of spawning are sketched here. The free spawning of the striped bass (top) takes place in fast-moving rapids of large coastal streams. The secretive eel dives to the depths of the Sargasso Sea to deposit its eggs after a journey of thousands of miles from fresh water. The trout uses a clean gravelly bed for its eggs. The eggs hatch weeks later.**

inches. Consequently there are many more male than female fish on the spawning grounds. It is for this reason that the species should be protected until they reach a size of 16 inches in order to insure adequate natural reproduction for the perpetuation of the species.

They do not build nests. When the female is ready to lay her eggs, from a few to as many as fifty males will press around her, each trying to fertilize the eggs as they are extruded. In their efforts to be next to the female when the eggs are laid, the males may actually lift her bodily from the water. Once the eggs and milt have been extruded, the possibility of any one egg being fertilized is purely a matter of chance.

The preferred spawning grounds are the rapids of a fast flowing stream. The fertilized eggs are only very slightly heavier than water and are not adhesive. They are carried along by the current and drift downstream without further care from the parents. After three or four days, depending on water temperature, the eggs hatch and the sac fry are at liberty. They continue to drift with the current until the yolk sac is absorbed and they are able to swim. At about this time the current of the fresh water stream has returned them to a sound or a bay where all that have survived the journey, and have not been eaten by various predators, are ready to begin life as baby striped bass.

Probably it is because they receive no parental care that a large female may lay more than a million eggs at one time. Such numbers are necessary for the preservation of the species. Most of the fish living in the ocean follow this general method of reproduction. That is, the eggs are broadcast at the time of fertilization and the survival of any particular egg is purely a matter of chance as it drifts in the ocean currents.

The white bass is the fresh-water cousin of the striped bass or rockfish. Because they are so closely related, it's not surprising to find that their spawning procedures are very similar. The rock has the physiological requirement of spending some time in salt water before it can move into fresh water and spawn successfully. The white bass, on the other hand, spends its entire life in fresh water. It lives in the larger lakes and reservoirs, and when spawning temperature arrives in the spring, the fish move up the tributary streams until they find suitable rapids for spawning sites. There they lay their eggs free at the surface of the water and the eggs develop as they are being carried down stream to the reservoir from which the parent fish came.

The pickerel or jack has very specific requirements for successful spawning, which are quite different from many of the other game fishes. The jack builds no nest, and its favorite spawning loca-

**The lowered pond water exposes the nests of one of the sunfishes, probably bluegills. When this occurs during the spawning season, the eggs will die.**

tion is in shallow weed-infested waters where very little current is found. The eggs are adhesive and are laid in long gelatinous strings. The female drapes these strings of eggs over whatever vegetation may be available, and they are left to hatch without parental care. This spawning behavior is essential for survival of the species because pickerel are most often found in shallow silted ponds where the eggs would sink into the mud and suffocate if they were not supported by the vegetation.

The walleyed pike is intermediate between the nest builders and the free spawning species. It lives in the cool waters of a lake during most of the year. When spawning temperature arrives, it will swim to the mouth of a tributary stream where there is flowing water to provide oxygen and where rocks or gravel provide a hard bottom to keep the eggs out of the mud. The eggs are laid among the stones in large numbers without an actual nest being built. No further care is provided by the parents.

One of the most amazing methods of reproduction is found among the fresh-water eels. Those species of fish which come from the ocean into the fresh water to spawn are called anadromous species. The eel is a catadromous species because it spends its life in fresh water but moves into salt water to spawn. Many years of tracing these fish has developed the information that they live in fresh-water streams for several years until they reach spawning condition. At that time they migrate downstream into the ocean and move across the ocean floor to the vicinity of the Sargasso Sea. This area of the Atlantic Ocean is northeast of Porto Rico and southeast of Bermuda. It appears that the eels from all the Atlantic watershed concentrate in this area for the purpose of reproduction. Presumably the adults do not live to make the return journey, but the young eels return to the various streams of the Atlantic Coast and move upstream until they find suitable locations to spend their lives. There they live until they develop to the point where they take their turn in the spawning migration.

There appear to be two basic biological principles involved in the reproduction of fishes. Each species follows some general spawning procedure which provides for the eggs being supplied with oxygenated water, and which keeps the eggs from being suffocated by silt. These conditions may be provided by the actual spawning location or by parental care. The average number of eggs laid by any species seems to be in inverse proportion to the care the young receive from the time the eggs are laid until the new individuals develop. Presumably this is Nature's method for providing an adequate number of each species to reach maturity, regardless of the hazards experienced in their development. The greater the chance of loss, the more eggs are laid; the greater care the eggs receive, the fewer there are.

The second principle concerned is the temperature at which the various species spawn. It appears that the predator species, which feed principally on other fishes, spawn at a lower temperature than the forage fishes which serve as their food. This may not be true in every case, but it appears to be a valid generalization. Among the lake species, for example, we find the yellow perch and walleye spawning between 45 and 50 degrees, the pickerel at about 56 degrees, the crappie at 58 degrees, and the bass at about 62 or 63. By the time the young of these species have developed to the point where they are ready to eat other fish, the young of the forage fishes are beginning to swim. Among the forage fishes we find, for example, the chub sucker spawning at 62 or 63 degrees, the brown bullhead at 77, and the white catfish at 80 to 82 degrees. Indeed Nature has a complicated system for providing that each species have a supply of its favorite food at the proper time, and still providing for adequate escapement of each species so that none is entirely destroyed. ◆

***The basic principles of deer herd management were presented to the Wildlife Committee of the 1967 General Assembly by Executive Director Clyde P. Patton.***

DISTINGUISHED gentlemen of the Wildlife Committees in the Senate and House:

As we understand, the principal purpose of our appearance before you this morning is to comment on the responsibility given to the North Carolina Wildlife Resources Commission for management of the State's important deer herds. We describe them as *important;* first, because they have great value for sport as a business and recreational resource; second, because our failure in their proper management would result in mounting conflict between landowner interest and sportsman interests. An important objective of our education program is to show that game is a product of the land and that its production and enjoyment for hunting must be compatible with vital agricultural and industrial land uses.

To be successful, wildlifers must earn and win support from landowners who furnish the soil to produce game. This can best be done by following sound proven practices designed to prevent serious conflicts in land uses before they occur. And at the same time, provide maximum successful hunting opportunity for healthy, vigorous game animals.

This is no easy task. It requires reliable information obtained from continuous professional field research and observation; also, from careful analysis of age, sex, and ovary studies of animals killed. From this we learn of population densities and reproductive capacities of wild animals. This data is used when establishing seasons and limits to insure adequate breeder carry over for the next crop—to sustain the yield annually on a continuing, permanent basis. This is the essence of conservation and the cornerstone of our future.

Game management is complex. Most important of all the people must understand and have confidence in the responsible agency. You gentlemen know better than we that without this confidence there is failure. ◆

**"A Little Inconvenience"**

Has there ever been an advocate of an anti-gun law who did not loudly proclaim to the press that his bill would cause only a little inconvenience to sportsmen?

In fact, certain advocates of gun registration in Washington have tried to imply that sportsmen are not good citizens because they won't go along with "a little inconvenience." These advocates blandly ignore the past precedents of restrictive gun laws and the fact that arbitrary regulations have generally ended up in restrictions tougher than the original bill.

New Haven, Connecticut. is an outstanding precedent of why sportsmen fear police control. According to a recent article by the Associated Press, "Applicants for pistol permits in New Haven are required to fill out 21 pages of paperwork stating detailed information about themselves, despite an opinion from the Attorney General that such forms are not allowed."

The New Haven police chief requires six pages of personal information, including when and where the applicant intends to use the weapon, type of weapon, frequency of use, days of the week, hours of use and other detailed information.

The forms go into great detail about the applicant's citizenship, medical history, military service, educational background, employment record and his residential history. The forms go on and on for 21 pages and the applicant had better not make a mistake.

A new ordinance introduced, but not yet voted on, in New Haven would make any non-resident passing through the city a "resident." Would a hunter driving from New Jersey to Maine to go deer hunting be in violation if he did not stop and apply for a long gun permit? How long would it take for an out-of-stater, who was suddenly made a resident, to stop and get a permit to pass through New Haven?

* * *

For 57 years, sportsmen have been "a little inconvenienced" in New York City by the Sullivan law. One of the inconveniences is that an applicant for a handgun permit has to pay $20.00. If he is refused a permit, as he often is, the money is not returned but goes into the police pension fund.

According to the President's Commission on Crime in the District of Columbia, "New York City administers the Sullivan law's licensing provisions restrictively with the apparent goal of making private ownership of handguns as uncommon as possible; compliance is made burdensome and pre-licensing investigations are exhaustive."

It is not a simple matter of whether or not a person is entitled to own a handgun—the application is made burdensome.

The application is indeed made burdensome when the applicant has to be fingerprinted, photographed, required to fill out numerous forms and, in some cases, actually take three witnesses to the police station to have them swear to his good character. It means two to three days lost from work every year.

When New York City added a rifle and shotgun registration law several months ago, the advocates and especially the press said it would be only "a little inconvenience."

It did not work that way. On August 23, the New York Times, a continuous pusher for national registration and licensing, finally came to the rescue of the sportsmen in an editorial:

"Unfortunately, the city has not done all that it could to simplify registration. Form FCB's instructions read as if they were written by a Faulknerian scholar. A half-dozen pages have to be filled out, including notarized vouchers, certified checks and photographs. All this may be helpful for the records, but the paper work is ridiculously complex. Why should it be more difficut to register a rifle than an automobile?

The New York Times had lived with the Sullivan law in its doorway for 57 years. Yet it wondered why it was more difficult to register a firearm than an automobile. Sportsmen knew. They had obeyed it since 1911.

As an upstate New York writer reported, "The television stations and newspapers in New York City and many of the politicians were vehement in the demands for local and national registration. But after legislation is passed, these people are never heard from again when abuses begin. Whoever heard of these people coming to the rescue of harassed sportsmen?"

Perhaps the New York Times with its editorial has started a desirable precedent for the metropolitan media. Perhaps some of the media will follow its lead and defend the sportsmen when they are harassed with deliberate red tape after a bill is passed.

* * *

When the Sullivan law on handgun registration was passed in 1911, the media and politicians said no one wanted to take guns from the law-abiding citizen and that it would cause the sportsman only "a little inconvenience."

Has the arbitrary power of the

police in New York City to say who can and cannot own a handgun dried up the legal private ownership? The New York City police tell the press there were 19,206 handgun permits in 1967. What they do not tell the press is that less than 2,000 of these handgun permits were issued to private citizens not connected with law enforcement or security.

New York City, with a population of over 8 million, issues less than 2,000 handgun permits for purposes of recreation or self defense. With this as the major precedent of registration in America, is it any wonder that spotsmen fear the same will happen with sporting rifles and shotguns?

There were no fees to register handguns when the Sullivan law was first passed. Then a charge of fifty cents was applied and now it is $20.00. Is it any wonder that sportsmen put no credence in registration proponents' promises that new registration fees will be free?

If the holder of a pistol permit in New York dies, his firearms are immediately confiscated by the police with no compensation to his estate.

The President and the administration have frequently cited New York's Sullivan law as a model law which should be adopted by all of the cities and states.

Has the Sullivan law helped curtail crime? From the enactment of the Sullivan law in 1911 to 1967, the criminal homicide rate in New York City increased from 3.0 to 9.2 per 100 thousand, or more than 300 per cent.

In 1966, no licensed firearm was used in the commission of any criminal homicide, aggravated assault or robbery in New York City.

Advocates of national registration say that one of the reasons they want to set up a central registration agency is to help sportsmen recover lost or stolen guns. In 1967, 53 firearms were stolen from New York City license holders. As of June 13, 1968, there was no record of any of these firearms having been recovered.

Proponents of federal registration say that such a law would help the police in crime detection. Attorney General Ramsey Clark repeatedly says the police need this help but the Department of Justice has never made a study to say how many crimes are cracked through gun registration—or how many cases are not made because of a lack of registration.

Reports of criminals being arrested after a firearm which they used in the commission of a crime was traced to them are conspicuously absent from the annual reports of the New York City Police Department.

A recent search of New York City newspapers reveals no instance in which the trace of a firearm by serial number was material to the case presented by the prosecution within the past 15 years. For the most part, the firearms used in crime were either stolen or obtained in violation of existing law.

Charles Dickey
National Shooting Sports
Foundation, Inc.

### Distant Relative

DEAR SIR:

As a rather coincidental, and unusual, personal sequel to Jim Dean's article in July's issue of "Wildlife," titled, "Cane Pole Fishing," I would like to pass on to you the following, due to its related and human interest aspects.

The setting is here in the Canal Zone in the town of LaBoca, which means, "The Mouth," so called because it actually is the mouth to the Panama Canal at the Pacific entrance.

We live in LaBoca, within 300 feet of the Canal. Fishing, boating and ships are as much a part of our life down here as traffic lights are to you folks up there in "The Land of the Big P. X.", this being one of the few places I know where the average home has two boats in the garage and the car sits out in the weather.

We have a fifteen year old son, Mark, who would look strange without a fishing pole in his hand. He is our supplier of seafood and bream is our favorite, partly because they are so plentiful here in the fresh waters of the canal. And this leads to the human interest part.

My wife, Mary Frances (Knott) of Oxford, N. C., is quite a fancier of seafood and bream in particular. This past Wednesday she decided she would have bream for lunch and went about thawing them out and frying them to a golden turn. Then, picking up the newly arrived edition of "Wildlife" and flicking the pages until her eye caught the CANE POLE FISHING title, she sat down to enjoy both bream and the story, taking no note at this point of the author. As she continued reading she became more and more aware that she was associating the places like Little Alligator River and Fort Landing with long past memories and conversations, while her mind kept conjuring up the image of her uncle. After several more paragraphs she glanced toward the top of the page and noted for the first time the author's name. It brought tears to her eyes momentarily because Mr. Will Dean, to whom Jim referred as "grandpa," and who passed away within the year, was also her mother's brother and one of her favorite uncles.

Coincidental? Unusual? I think so. To be enjoying bream and reading an article at the same time on how to fish for them and then discovering it was written by a close relative some 2500 miles distance, is a little out of the ordinary.

It also points up the fact that your magazine has pretty wide coverage and will find a Tar Heel, no matter how lost he might be, or, as we prefer to say, how temporarily misplaced.

I would like to compliment you on publishing a fine little magazine. If I had any criticism at all to offer, I would have to say that I personally think your yearly subscription rate is too low. I don't think any magazine in its class should go so cheaply.

CURT DARDEN
(FAYETTEVILLE)
BALBOA, CANAL ZONE

### Well Put

DEAR SIR:

The August, 1968 issue of *Wildlife in North Carolina* carried a letter written by a J. W. Davis, Williston in which he professes to be a conservationist. In my opinion, preservationists are not conservationists; they want everything as it is or was despite the fact that the ecological conditions of the United States, and for that matter the whole world, have changed from the so-called

## KNOW YOUR PROTECTOR

**Walter Alan Basnight**

Walter Alan Basnight, Wildlife Protector, stationed at Warrenton was born August 24, 1944 in Tyrell County. He is the son of Mr. and Mrs. Walter C. Basnight of Route 3, Columbia, North Carolina. He graduated from Columbia High School in 1962, and Chowan College in 1964. He worked for Times Printing Company in Manteo, after which he served three years in the U. S. Army.

Alan attended the Basic Recruit Training School for Wildlife Protectors at the Institute of Government in Chapel Hill, North Carolina, in June 1967. He was employed as a Wildlife Protector Trainee October 1, 1967, stationed in Roanoke Rapids. He was transferred to Warrenton as a Wildlife Protector in January 1968. He has completed three In-service Training Schools.

Mr. Basnight is a member of the Southeastern Association of Game and Fish Commissioners, Law Enforcement Section; the State Employees Association; N. C. Wildlife Enforcement Officers' Association; and the Warren County Jaycees. He is married to the former Ann Clough of Columbia, North Carolina. They attend the Norlina Baptist Church.

## DIVISION ENFORCEMENT RECORD FOR SEPT., 1968

**HUNTING & FISHING**

| | |
|---|---|
| Persons checked | 30,069 |
| Total prosecutions | 739 |
| Total convictions | 725 |
| Total cases not guilty | 5 |
| Total cases nol prossed | 8 |
| Total cases dismissed | 1 |
| Total fines collected | $4,359.75 |
| Total costs collected | $6,487.75 |

**BOATING**

| | |
|---|---|
| Persons checked | 4,046 |
| Total prosecutions | 261 |
| Total convictions | 253 |
| Total cases not guilty | 0 |
| Total cases nol prossed | 7 |
| Total cases dismissed | 1 |
| Total fines collected | $ 662.80 |
| Total costs collected | $2,359.25 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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"good old days." The only thing good about them is that they are gone.

The ceaseless lament over the buffalo is as wrong as it is phony. We have here in the west as many buffalo as the land will permit. Western lands, despite many easterners' ideas, are privately owned. The public lands are, for the most part, in areas where buffalo cannot winter. Our state herds are controlled to forage conditions by license to residents. Other states have the same regulations. Private herds are either auctioned off or killed, and the meat sold. The buffalo is an animal which must be confined and watched to prevent damage to crops, etc. The question is simply one of management and meat desirability, and I for one will take a good beefsteak anyday in preference to buffalo.

As for not killing deer, in a midwest state over 42,000 deer died in one winter from winter kill, and the reason was starvation. This means that half a million pounds of meat went to waste because the would-be preservationisits would rather have the beautiful brown eyed deer become a stinking carcass from winter kill and another statistic in the game management report.

In Colorado at one of the United States arsenals where deadly nerve gas is manufactured and stored, a company manufactures the deadly pesticides and herbicides so widely used in agriculture and which in turn kills our wildlife in greater numbers than any groups of hunters. Over a number of years the refuse from this production was pumped into a lake where thousands of wildfowl were poisoned every year. Finally this is being corrected, but what of the thousands that have already died? The hunter, however, receives the blame.

This tragedy is repeated over and over throughout the country and on a scale which makes the death from guns insignificant, but where is the voice of the "conservationist" when the dollar is involved?

No, the blame is not on the man who would enjoy the gun, the rod, the bow; but rather on the never-ending quest for increased production whether it be farm, forest or other by utilizing methods which promise cheaper means of production without really knowing the effect on the ecology.

True conservation preserves that for which there is no immediate use, but uses wisely that which is needed; and this, I think, is what the North Carolina Wildlife Resources Commission is trying to accomplish.

Yours truly,
GERALD O. KELVER
BRIGHTON, COLORADO

## UNKNOWN TO MOST

**Clifford L. Bampton,**
*Supervisor*
*Western Wildlife Management Areas*

Oh flying squirrels do exist,
Tho' many know not where.
The secret is they do exist,
In spots that seem quite bare.
During daylight hours they're
seldom seen,
By the likes of you or I.
But those who prowl during
midnight hours,
Have often seen them fly.
For wings they have a fold of skin,
Covered with much hair.
To birds of course this seems a sin,
But the squirrels don't seem to care.
They flit and play and hop about,
While darkness covers all.
But comes the dawn, they'll all
be gone,
In answer to Nature's call.

PHOTO BY LUTHER PARTIN

**Could it be that there are weight-watchers even in the wildlife world? This young raccoon seems to be intent on draining the contents of the soft drink bottle.**

## BLUE BIRD DAYS

• **continued from page 19**

but returning to check it too seldom may lead to lost fish or a net full of badly mangled fish which have been chewed by crabs attracted to the net. Usually an hour or two between checks is sufficient. Most net fishermen discard the blue crabs which become entangled in their nets, but those who want to take time to save them will have an additional bonus in the form of steamed crab meat on their supper menu.

In addition to fat, fresh mullet and blue crabs, the duck hunter who sets his gill nets in North Carolina's estuaries may also reap any of the other fish which inhabit these waters. Brackish water net catches frequently include carp, white perch, spot, bluefish, striped bass, puppy drum and other brackish water species.

Just as they regulate other wildlife species and methods of harvest, the North Carolina Wildlife Resources Commission has established regulations with which the gill net fisherman must comply. Gill nets must not be set in waters classified by the Wildlife Commission as "inland waters" unless the fisherman observes special regulations pertaining to these waters. These regulations are outlined in *1968 North Carolina Fishing Rules* which is available free from the Wildlife Commission or from any hunting and fishing license agent. Nets set outside "inland waters" must be considered as set in "coastal waters" and thus come under the jurisdiction of North Carolina Department of Conservation and Development's Division of Commercial and Sports Fisheries.

Since most of the good brackish water net fishing is in waters classified as "coastal" the duck hunter who uses a gill net will probably want to purchase the relatively inexpensive commercial fishing boat license which net fishing in these waters requires. In any event, before the duck hunter begins to drive stakes and play out his net, he should have become thoroughly familiar with the fishing regulations which apply to both inland and coastal waters in North Carolina, and have satisfied those regulations which apply to the type of netting which he does.

While no duck hunter would presume to suggest that duck hunting could be replaced with net fishing, there are those who know they will occasionally be trapped by a bluebird day and who enjoy being outdoors more than they do sitting by a card table. There are those duck hunters who know that, during the off season (those 10 months of the year when waterfowl hunting is illegal), one must do something. These are the duck hunters who will probably benefit most from learning about gill net fishing. They are of the same breed who secretly carry a coiled fishing line in their pocket and load their Currituck Sound blinds with white perch on bluebird days while less ingenious hunters fray their nerves raw with impatience.

He is the true outdoorsman—the one to whom learning the secrets of field and stream is a way of life rather than an idle diversion. ⬍⬍

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North Carolina waters contain several different kinds of fish that have been placed there from waters of other states. The walleye is one of these "transplants." It has worked out well and provides fishing of high quality in many mountain reservoirs. It prefers the cold, clear waters and usually, is more cooperative with the fisherman in the fall and early spring. In their native habitats, they reach 15 to 20 pounds, and many over 10 pounds have been taken from Tarheel waters so far since their first introduction here over 15 years ago.

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# Wildlife IN NORTH CAROLINA

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WILDLIFE IN NORTH CAROLINA recognizes the need for close cooperation between State and Federal conservation agencies and the people who hunt and fish—to bring about a restoration of our renewable resources. The Editor gratefully receives for publication news items, articles, and photographs dealing with the North Carolina out-of-doors, but reserves the right to reject materials submitted. Full credit is given for all materials published.

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VOL. XXXII, NO. 12 DECEMBER, 1968

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EDITORIAL STAFF

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DUANE RAVER _ _ _ _ MANAGING EDITOR
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Is this the mythical buck that you are still waiting for? Massive racks aren't the rule in North Carolina, but many very fine ones are taken each season. Usually antler size and quality are dependent on the general condition of the buck which in turn is affected by the animal's food supply. Good deer range means more trophy deer. Painting by Jerry Burke.

# "Not a Sparrow Falls"

DECEMBER is lowering skies, bleak winds, and snowflakes dancing in the frosty air. In the forests and fields, along banks of woodland streams, all is hushed and still, save for the cautious scratching of a migratory bird, neatly camouflaged in the brown of leaves long fallen, and the raucous caw of a crow, echoing harshly in the stillness.

Brown thickets and hillsides warn that deep, deep winter is on her way. In stark bare limbs upflung to the sky, vacant nests are revealed, the occupants long gone, their summer's work done. Gone, too, are their fledglings, who learned to fly and fend for themselves among the branches when the leaves were young and green. Now, only intricately woven nests remain, to tell the story of an old and instinctive work of love.

December, for nature and her furred and feathered creatures, is a pause in time, prelude to deepening winter days. Now the squirrel makes his first attack on the precious horde of food for which he worked all summer long, the snake slumbers mysteriously in his underground lair, and the 'possum and the 'coon stray rarely from their cozy beds.

December—and her sister months of winter—is hard on nature's creatures. Frozen earth protects the earthworm and its kind—tasty morsels for the toynee and his brothers. Sleet and snow obscure well trod woodland trails, and ice crystals form on many a needed waterhole.

In December, the grasshopper who sang away the summer now shivers at his plight, and constant pangs of hunger remind creatures of the forest that only past labors—and the law of tooth and claw and snapping beak—will bring them through the deepening winter twilight into another spring and its bright hope.

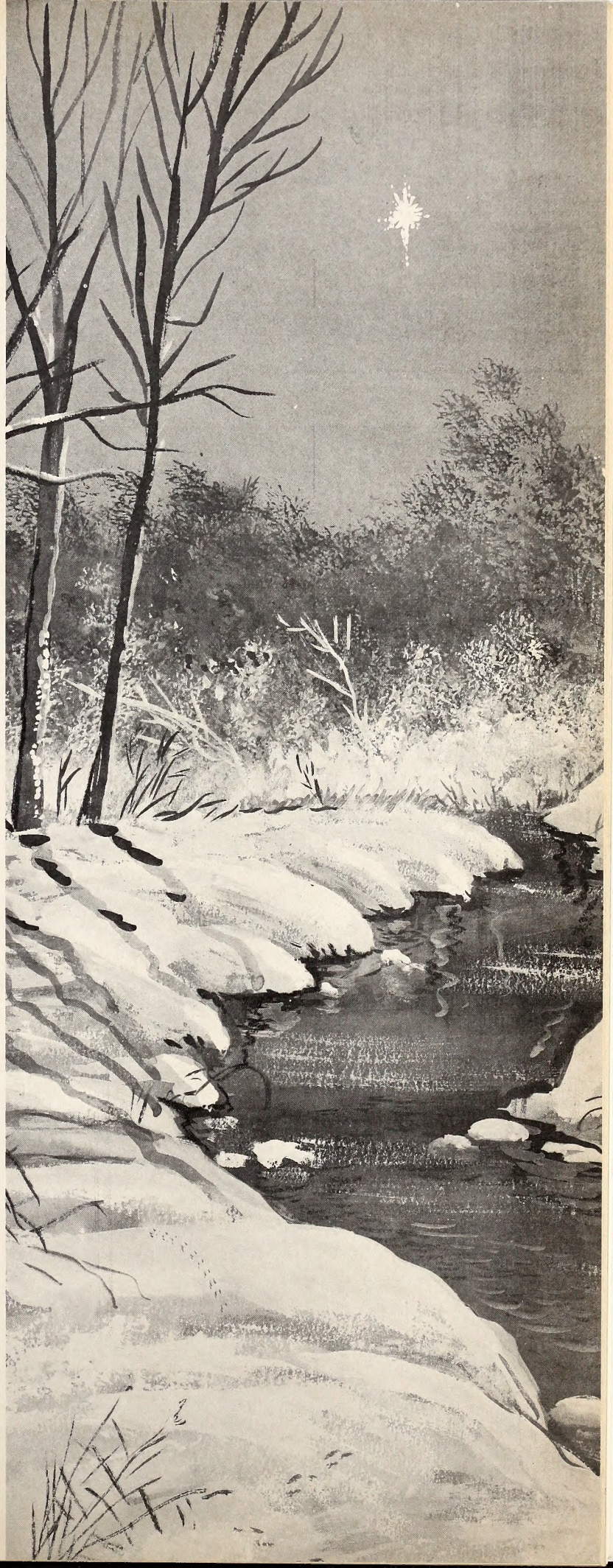
But . . . lo! What is that light in the forest, tucked far into December's pages? Which, as each page is turned, reveals almost at its end an old and irrevocable promise, made once and for all time to all of God's creatures.

The message is borne on the heels of man, making his annual trek into the woodlands for yaupon and holly, and mistletoe riding high, to deck their halls for a season bright and festive and glowing, in celebration of the birth of a Man who walked the earth centuries ago. A Man Who once told a faltering disciple that "Foxes have holes, and birds have nests, but the Son of Man hath not where to lay His head."

As the invasion of the woods ebbs and flows, small, frightened eyes watch furtively. But in time, the stillness returns, and tenants of the woods once more bow to their struggle for survival—and the law of tooth and claw.

But who among us knows but what some deeply buried instinct assures each furred and feathered creature that this Man, whose birth date we observe each December, proclaimed when He was on the earth, for all time past and ages to come, that "Not a sparrow falls without His notice."

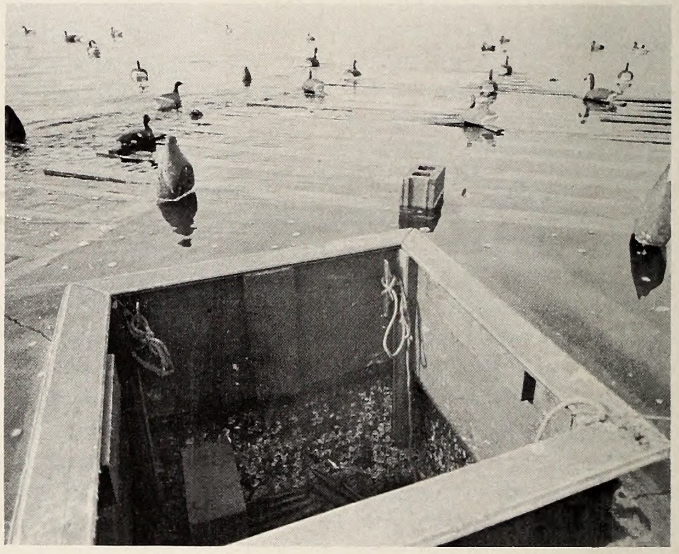
by Louise Lamica

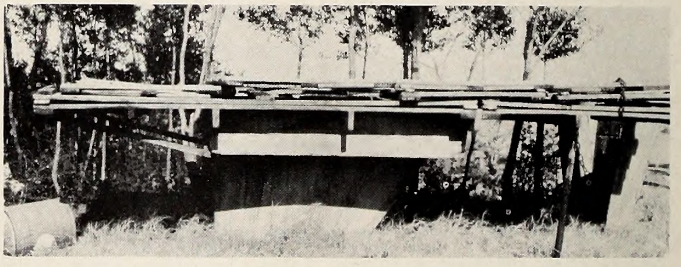


# A History of Market Hunting in The Currituck Sound Area PART 2

by Jack Baum
Elizabeth City

Above, a typical battery rig (1928) in action. Note the iron decoys and wells for 40-pound weights. Below is another model of a sink box with wings set and decoys out. The construction of these devices can be seen from the "dry land" photo.





IN order to hunt waterfowl profitably, old-time waterfowlers in North Carolina resorted to numerous ingenious techniques and devices. They built their blinds according to local conditions and, later, according to the dictates of federal waterfowl laws; they studied the weather, the water, the habits of their quarry; they learned the most effective ways to use guns and ammunition, skiffs and push poles, bait and decoys. They were expert with knife, axe, oar and a host of other hand tools. As their hands shaped to the tools they used, so their lives shaped to the habits of wild fowl they hunted and the fur bearers they trapped. These hunters became masters of camouflage, gradually learning to build blinds that were more comfortable as well as more effective.

There were several major types of blinds. By far the most effective and popular for use in the open water of the sound by market hunters was the laydown battery or "sinkbox." The battery box was coffin shaped and no deeper than necessary to hide a reclining hunter whose head was supported with a small cushion to allow him to see just over the rim. A four-foot rigid deck was permanently secured around the three sides, with flexible wings, made of light durable material that would float easily in any kind of weather, extending out further. These floating wings could easily be folded when replacing the rig on the battery boat at the end of a day's shoot.

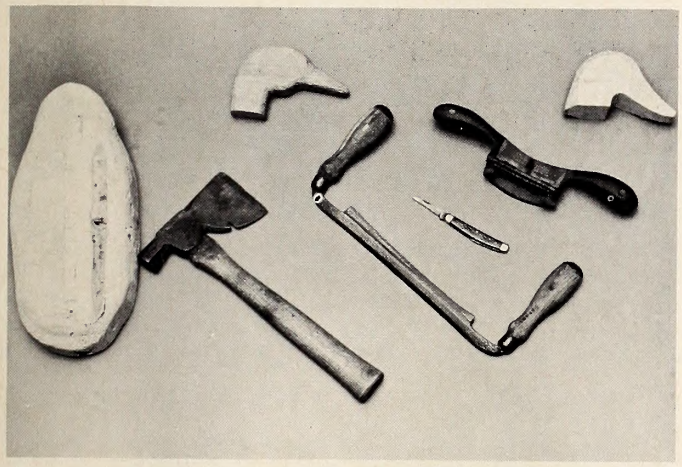
The rig was stabilized in the water by placing several iron ducks, painted to conform with the wooden decoys, on the rigid deck. They weighed 25 pounds each. The five Wright brothers of Jarvisburg also placed two, 40-pounds weights in the deck for additional stability. When it was approached from a distance, the battery appeared to be level with the surrounding water, especially when there was a light wind to create choppy water. A stand of decoys ranging from 150 to 300 completed the outfit. It was anchored in front, to the wind, with a large anchor to prevent dragging into the decoys and a smaller one at the other end to prevent swinging.

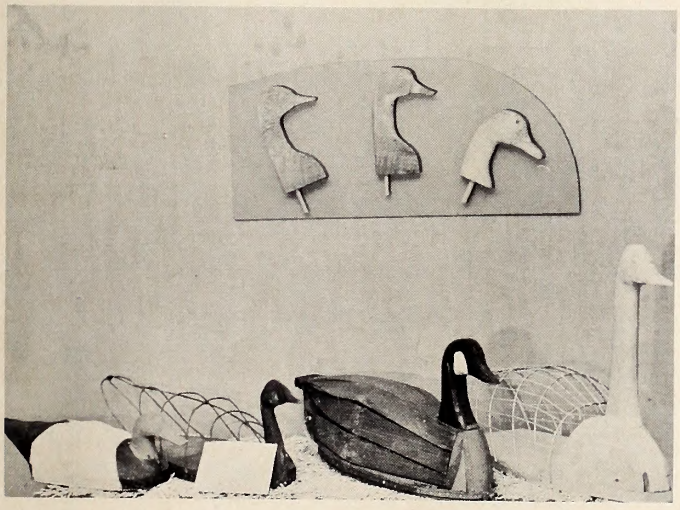
In the early days these blinds were loaded on a "canoe" type sail boat of more than 20 feet in length, hewed out of several logs and securely dowled together into a heavy but sturdy work boat. Originally they were operated with the sprit-sail and jib rig. Much later, about 1904, both the canoes and the famous shad boats, had their sails removed and gasoline engines installed.

The heavy wooden duck decoys were loaded on a skiff and towed behind. It was a two-man rig; one man shot from the battery while the other one picked up the dead game. They took turns in the battery.

No doubt there were thrilling moments for these hunters; but they were not hunting for sport—it was a hard, dangerous and back-breaking means of support for their families, and was only a seasonal, partial source of income. At one period almost a hundred batteries harvested the sound.

**These cast-iron decoys help hold the floating boxes down and help attract ducks as well. Many of the wooden decoys were fashioned with simple hand tools like these. Patterns usually came from the manufacturer's head. Although the frame and canvas or slat-covered decoys were easier to make, many old timers still preferred their juniper blocks.**





After the battery rig was outlawed, the hunters immediately designed a float blind of the one- or two-man "situp" type that was not in violation of the law. While not nearly as effective as the earlier type, it was the nearest thing to it that they could devise. The float box resembled a short square-ended skiff, with very low sides, decked entirely over and caulked on the bottom sides and deck sides, to make it water tight. It had hinged wings made from light material attached to the sides and stern. Then a box of about four by three feet is placed in the middle of the skiff with the bottom of the box extending a foot through the bottom and rising one and one-half feet above the deck. Add to this a few pine tops around the outside of the box, a shell rack, a bench along with a rope and anchor and the floating sit-up box is ready for flying game. The hunter's weight settles the sides down until the decks are almost even with the water. It can be towed short distances and will stand reasonably rough water. This rig became popular after a law was passed to permit non-residents to hunt in the open waters of Currituck Sound. These rigs are comfortable to shoot from and are still used in the sound today.

Another type commonly used in the open waters of the sound is known as the stake blind. In the early days it was of very simple construction: some 50 or 75 pine bushes were stuck in the bottom in the shape of a large hunting skiff with the tops held in position above the water with a few two-inch strips of undressed lumber. One end had a gate to permit the entrance of a skiff.

I have been told that the first one constructed was built by the late Charles Simpson of Grandy on the east side of Currituck Sound near the Pine Island Club marshes. Simpson's blind was tremendous; it not only held the decoy skiff but his gas boat as well. He must have picked a good spot, because a blind has been there continuously ever since and is licensed today by one of the Wright boys of Jarvisburg.

In recent years, this type of blind has been improved to make it more comfortable and to give the hunter a better position from which to shoot. Stake blinds are now constructed by building a box on posts about three feet above the water, An overhanging roof of branches near the water hides the hunter's skiff. Inside the box, or shooting platform, a shell rack and bench add to the hunter's comfort and convenience. This type has one advantage over the floating sit-up blind: one hunter can gun alone. He doesn't have to have anyone to pick up his dead game.

The marsh or point blind was, and is, also simple in construction. Reeds are cut or trampled down in the space where the hunter sits. More reeds are cut and stuck around the edge for additional cover. The tall reeds, between the blind and the decoys, are broken over to permit the gun to swing. A shell rack, gun sticks, and chairs or a bench complete the rig. The gunner enters from the rear, stakes his retrieving dog nearby, and hides his shove skiff in reeds a short distance around the point.

The goose box blinds were located on the east side of the sound. A large water-tight box, large enough to accommodate two or more goose hunters was settled at the water's edge on the bottom, at locations where sandy high land came in direct contact with the water in a bay. Banked with dirt and planted with turfs containing the roots of the natural surrounding grasses, the rim was left just high enough above the water to keep storm tides from entering. A shell rack and bench were added. When not in use, these blinds were covered to keep rain water out. With a large stand of live decoys honking and with the weather "right," it made a sight hard for a flock of geese to resist. Two of these were gunned from for more than 50 years on Beasley Bay where the property of Pine Island

Club and Currituck Club join.

Almost all the decoys in the early days were made of wood, juniper if available. In order to ride better and show up at longer distances in open water they were made much larger than the live duck. Some hunters made their own decoys with a hatchet, drawing knife, pocket knife, saw and wood rasp. While many of these ducks were made by men with little skill, others were works of art and today bring as much as $50.00 each in antique shops.

Pat O'Neal, Chairman of the Currituck County Game Board, who also hunted for the market as far back as 1912, recently stated that many of the hunters were so concerned about the wood being as light as possible, they felled the juniper trees in April and on moonlight nights, leaving the tops on for three weeks to draw out the sap before cutting the tree into duck-size blocks. The wood rasp was used not only to shape the decoy but also to give a rough finish, giving the decoy a more life-like appearance. The paints used were drab or flat. If it shined, the incoming flock flared off—to them something wasn't right.

Later (and still today) many hand-crafted decoys, especially the geese, were made on a frame and covered with canvas. They are easier to make, lighter and cheaper—but the old timers still look at their old junipers with a look of quiet affection. They well remember—year after year they brought home the bacon (well, ducks which brought home the bacon).

They not only made conventional decoys but also devised a type, sometimes called "confidence decoys" which added to the effectiveness of the stand. Some necks were carved very short on the heads to indicate the duck was not disturbed; some had the heads fastened on the body reversed with the bill resting on his back to indicate the duck was sleeping; others resembled the back half of a duck tipping to feed on the bottom in shallow water. Incidentally, the old time hunter always seemed to have a trick up his sleeves.

I well remember the late Sam McHorney of Grandy putting small bunches of watergrass around an air hole beside the marsh at Pine Island Club during the famous 1917-1918 freeze. Large bunches of black ducks immediately began to fall in the hole. He soon added dead ducks with their heads propped up among his grass decoys; the blacks and mallard continued to fall in like homing pigeons.

Before being outlawed, a stand of live decoys was very popular and effective for marsh and bay gunning. A stand consisted of 10 to 15 wild geese along with a slightly larger number of live mallards. They were secured with a leather strap to a "stool" of wood, about eight inches square, fastened to an iron rod which was sunk into the bottom. The wooden "stool" was about four inches below the water's surface. It permitted the live decoy a place to rest, preen, and waterproof his feathers from his oil bag.

In the early days, and even in recent years, the residents of Currituck County have been fortunate to have a bountiful harvest of wildlife resources for their profit and pleasure. As the hunting clubs grew over the years and as more and more individuals became interested in hunting the Currituck area, many residents supplemented their income by catering to sportsmen. Although no longer permitted to hunt ducks for the commercial market, in recent years they have still been able to "commercialize" waterfowl hunting by working as managers, guides, marsh guards and crewmen.

Minor industries grew out of waterfowl hunting: building push skiffs, making ash push poles, carving decoys and building blinds. Local stores have for years supplied sportsmen.

The hunting of waterfowl, in one form or another, for more than a hundred years, resulted in one of the major sources of income for the families of Currituck County and parts of Dare County. Since families were large and farms small, the average resident had to turn to lumbering, fishing, trapping, duck hunting, eeling, turtling, raising stock and working with a hunting club to supplement his income. Many took on three or four of the above occupations if the seasons would permit. They were jacks of all trades. There were no factories or defense plants. They had to scratch and scratch hard for a living.

Of the many ways the Currituckian employed to make a living, the writer is reminded of a true story told him by the late Willis Doxey before World War I. Doxey himself was a farmer, market hunter, guide, and marsh guard at various seasons. While guarding the marsh for Currituck Hunting Club of Fosters Creek, he and the late Bob Walker of Poplar Branch trapped for muskrat, mink and coon. One night Doxey returned to camp near midnight with the money he had just received from their last shipment of furs. He woke up Walker and handed him almost $2,000.00 as his share. Walker rubbed the sleep from his eyes, gazed at the money and turning to his partner said, "Willis, I am going home." Home was four miles across the Currituck Sound. "What for, Bob, at this time of the night?" "I want to tell my wife, we are rich!" Walker built a two-story house with the money. A daughter resides in it today at Poplar Branch.

The hunting clubs, mainly on the east side of Currituck Sound, gave many winter season employment and some year around employment. Among the older and better known clubs were Pine Island, Currituck, Monkey Island, Narrows Island and Swan Island. Joseph Baum, great-grandson of Peter Baum, who secured a large land grant on Roanoke Island on or before 1729 (including the famous "Mother Vineyard" land and vine), built a large home on the land now known as Pine Island Club, located on the banks east of Grandy around 1815. He and two of his sons, Abraham and Josephus, began to acquire the property between the ocean and Currituck Sound, including the marshes, ponds, and creeks bordering on the property. At one time they owned about 12 miles along this one stretch. It was then, later, and is still known as one of the greatest areas for marsh duck hunting in

**This 1928 photo shows Dr. Julian Baum feeding wild geese in front of the Pine Island Club guide's quarters. Left, the five Wright brothers, Johnnie, Dennis, Daniel, Willie and Charlie, in front of their Polk Island Camp.**

America. In 1857 Abraham Baum sold approximately four miles of this property to a group of northern sportsmen for $3,100 (a dollar an acre). A few months ago the ocean front part of this property alone brought in the neighborhood of $1,000,000. The hunting part of the property is still intact. It is perhaps one of the oldest duck hunting clubs in continuous operation in the country—certainly in North Carolina. Down through the years the name has never changed: it is still known as the Currituck Club.

In 1912, Abraham's brother Josephus sold about four more miles of the property to a group of nine sportsmen from Boston and New York City for $60,000. It is today the Pine Island Club. Dr. Julian Baum managed the property until his death in 1935. Several of the members were up in their late seventies and early eighties. They sold the property to Austin D. Barny of Farmington, Connecticut, in 1935, and it is managed today by Carl White. A cousin of Abraham and Josephus, Solomon Baum, operated the Sand Bridge Club, just over the North Carolina-Virginia line at Back Bay, Virginia, for more than 50 years before 1900. A brother-in-law, Neddie Midgett, had a combination hunt club and market gunning operation on Church's Island well before 1900.

The Narrows Island Club, located on the west side of the sound within a couple of miles of the Poplar Branch Wharf, has also been in operation since well before 1900. Ashley Corbell was manager from the mid-1880's until 1904, then John White operated it until 1946 when he was succeeded by Cleveland Aydlett. Many of the old members have now passed away.

A portion of this property was later purchased by Earl F. Slick of Winston-Salem. He is erecting a new club house near Devils Elbow on Little Narrow Creek on the site of the old club house.

According to George Twiford who managed the property for 30 years for the late C. A. Penn, the Monkey Island Club was originally owned and operated by a Mr. Curles, later by his wife, followed by Tilman Lewark, Joe Melson and W. R. Beasley. The two sons and a daughter of C. A. Penn own the property today. Mr. Penn purchased it about 1930. This property has long been famous for canvasback and marsh duck shooting.

Another very old club is the Swan Island Club, located just north of Monkey Island. It also has enjoyed good shooting for both diving and marsh ducks. The late Thomas Dixon had his place on Morse Point and Joseph P. Knapp on Mackey's Island.

The following information taken from the Game Register of the Currituck Shooting Club, gives a general idea of the splendid hunting in the old days. For the 22 year period from 1888 to 1910 there were a total of 72,124 fowl killed, including ducks, geese, snipe, (629) and swan. This includes blacks, 25,475; mallard, 12,050; widgeon, 11,445; gadwall, 3,644; and geese, 5,795. Over a 21 year period beginning in 1888, the yearly average number of birds taken, per stand per day, ranged from a low of 14 to a high of 46 (in 1901).

Most years the averages ranged from 29 to 46. In the same register, one may note that from 1890 to 1910 a total of 62,009 birds were taken at the Swan Island Club. The yearly average, per stand per day, at several other clubs including the Pine Island and Narrows Island Club would compare favorably with the Currituck Club.

To the members of many of the clubs the word "baiting" was a misnomer. They fed ducks and geese by the thousand. Pine Island Club put out 60 bushels of corn daily in their marshes during the hunting season. They started out with a smaller amount before the regular season began and continued in a like manner after the season closed, still feeding the game but in decreasing amounts over a period of weeks. This was before ducks and geese fed extensivly in local grain fields and the club sent corn to Norfolk, had it cracked to about the size of pop-corn, and scattered it with the native duck grasses until the ducks got the taste. Both Currituck and Narrows Island Clubs probably fed approximately the same amount at that tme. This totaled 180 bushels per day in a four mile

radius. Rest areas were also set aside in the marshes.

These conservation practices were of particular value in the preservation of the wild fowl during the period the locks were out of the Albemarle-Chesapeake Canal. Corn was put out during the summer season to encourage teal, mallard, and blacks to nest in this section in greater numbers.

Some 40 years ago, a flock of wild geese lit in a Pine Island goose pen formerly used for live decoys. They only numbered seven but soon they brought others; they took to the barn yard and soon came up and ate on the porches of the manager's home. If they knew you, they would eat from your hand. Eventually this flock numbered over 300. The descendants still make their appearance in season.

Recently I counted more than 50 teal, mallard and black ducks in the pond within 50 yards of the clubhouse. While the Currituck Club was organized in 1857, it was closed during the Civil War and wasn't visited by the Yankees during that period. The local citizens confiscated such moveables as guns, ammunition and decoys to be sold in front of the county courthouse as the spoils of war; however, they didn't damage the clubhouse.

From 1867 until the present, there have only been five managers or superintendents: B. F. Taylor, T. J. Poyner, J. C. Gallop, J. W. Poyner, and the present manager, Murray Chappell. The club property has been "recaptured" by the rebels: of the twelve present members, seven live in North Carolina, the other five above the Mason-Dixon line.

Sportsmen today still bring much revenue to the area; not only hunting club members, but by others who love to hunt wild fowl as well. They gun from some 500 stake blinds, point blinds and 35 sit-up sink boxes. The average price of a day's hunting for two in the stake blinds is between $30.00 and $45.00. In the sink-boxes, for two and sometimes three, (taking turns in the blind), the cost runs from $60.00 to $75.00. A stand of decoys numbers between 200 and 300, ducks and geese, in the sink-box, while generally fewer than a 100 are used for the stake blind hunter. The type of boats used, number of men necessary to operate the stand, along with the cost of the box and decoys increase the tab for a sink-box blind.

The eight and ten gauge muzzle-loader shotgun became popular well before the turn of the century as the old muzzle-loader faded out. The earlier ones were of the hammer type. Willis Doxey and Edgar Gallop of Poplar Branch used their eight gauges even after 1910. The ten gauge, hammerless types are used by a few sportsmen today.

According to the old timers, the "punt" gun was never in general use in Currituck Sound. One that was used in the sound, however, is in the State Museum at Raleigh and was owned by the Walker family living in the upper part of the county. It has a barrel eight feet long with an inch and a half bore and weighs almost a 100 pounds—called by some people a two-gauge. It had to be shot from some sort of support since it is too heavy to be fired from the shoulder. Captain Lloyd Doxey has reported that a few of this type were still in use on the Rappahannock River on the Chesapeake Bay after 1910. As many were homemade in the hunter's shops, seldom were any two alike. When shot was scarce, small pieces of scrap metal were often used. Some of them were dangerous to fire. The "punt" gun was a great drain on the waterfowl population.

Along with the "punt" gun, a technique called "firelighting" was also a severely effective method of taking waterfowl in large numbers. Firelighters placed a naphtha lamp (kerosene lantern) on the bow of their hunting skiff. A reflector was rigged by placing the lantern inside a five-gallon can which had one side cut away. At night the ducks were either to blinded or too startled by this light to fly. There was little sport in this method of taking game and sport was not intended by the hunters; this was a cheap and efficient means of killing ducks and geese for the market. When a pond or certain area was "firelighted" the game would not return to the area for a long time. When the punt gun was used by the firelighter it was not uncommon to kill a 100 bewildered ducks at one shot. Fortunately, these methods were outlawed many years ago.

The automatic and repeating gun, mainly 12 gauge, followed the eight and ten bore doubles. They were in general use by the market hunter in Currituck Sound as soon as they hit the market.

In 1922 the residents of Currituck County established a game board in order to better regulate the hunting conditions on Currituck Sound. Members of this five-member board are selected from several sections of the county. Pat O'Neal, the present chairman, who has been very helpful in furnishing some of the material for this article, reports that there are now between 500 and 600 blinds in Currituck Sound. They are licensed by the Board for an annual fee of $8.50. These blinds and the point blinds must be spaced at least 500 yards apart. Approximately 75 float, or sit-up float blinds are also licensed annually. About half of them are gunned. The fee for these is $16.00.

Several years ago the Game Board established a waterfowl rest area just north of the Little Narrows (creek) abreast of Poplar Branch Wharf. It runs north for a distance of about four miles and is approximately one to two miles wide. No hunting is permitted in the area nor are boats allowed to cross this space during the hunting season. Another one is proposed and probably will be established soon. Rest areas are beneficial in that wild fowl feed and rest during the day as well as night.

The combined efforts of the Currituck County Game Board, members of the hunting clubs, the North Carolina Wildlife Resources Commission, the North Carolina Wildlife Federation, Federal Laws, the treaties with Canada and Mexico, Ducks Unlimited along with other nonprofit conservation organizations and thousands of individual sportsmen have done an outstanding job in their efforts to preserve the wild fowl population. A number of observers have stated that Currituck County has

• **continued on page 31**

# Wildlife in Wood

by Duane Raver

THERE are many excellent wildlife artists over the country today—some sketch and some paint their subjects, others photograph them, and a few shape the wild creatures from wood. Such an artist is Harry Meyer of Gerald, Missouri.

We first learned of him through correspondence when his wife wrote WILDLIFE IN NORTH CAROLINA some months back and enclosed a photo of some of Mr. Meyer's carvings.

Although Mr. Meyer, who is 72, has been carving various objects in his spare time for many years, he began using birds as subjects only three or four years ago. They have been so fascinating that he fashions birds exclusively now. Both he and Mrs. Meyer spend many hours observing a wide variety of birds at the feeders around their Missouri home. Titmice, nuthatches, downy woodpeckers, gold finches, and others who enjoy their hospitality. The details of these live birds are studied and then translated into wood.

First, Mr. Meyer outlines the birds in various poses on selected pieces of white pine, linden (basswood), walnut, and wild cherry, then rough cuts them on a band saw. He then shapes the blanks with a sharp pocket knife and sandpaper. The tiny, precise legs and feet are of durable wire, fashioned to life-like realism.

To put life into a piece of wood, the proportions of the bird must be correct, the position of the wings, tail, shape of the head all just right. But then comes the painting. Mr. Meyer does all of his own painting, working with oils and "very good brushes." The finished bird then needs a home. "It's fun finding the right wood for mounting the birds," says Mrs. Meyer. "We have creek beds, beautiful hills and wooded areas along the great Missouri River all near our home."

The drift wood, weathered limbs and picturesque logs on which the birds are perched, are art objects too. The final product has a place in the most honored viewing area of any home.

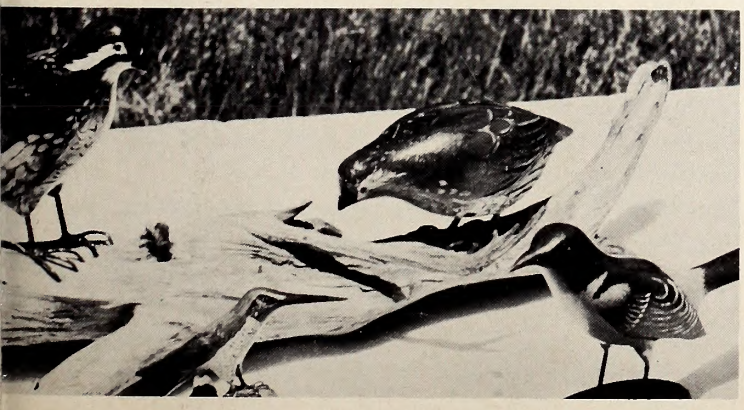
Being good "Cardinal" fans, the Meyers support the "home" team by creating redbird lapel pins. Actually Mr. Meyer carves all sorts of bird coat pins, most of which are less than two inches long, all precisely hand painted in detail and covered with a coat of glossy lacquer. The colors are soft, "feather" colors, not overdone. The little gray owl, for example, looks like he would soon spread his wings and quietly steal away.

The birds that Mr. Meyer carves life-size includes a long list from humming birds to piliated wood peckers. Each is mounted securely to a natural wood base and sell for from $5.50 for the smaller birds, to $15.00 for the big ones. One-half life-size models are from $4.00 each. The dainty lapel pins, complete with sturdy pin clasp are $2.50 each.

Special order, natural finish, walnut, cherry, oak, etc., pieces are also available. Mr. Meyer welcomes all inquiries and orders.

So, next time you're traveling in the vicinity of Route 1, Gerald, Missouri 63037, stop by. You'll likely find artist Harry W. Meyer at work in his screened summer house or in his snug work shop if it's wintertime.

**These are but a few of the birds of Harry W. Meyer, who is shown in the above photo during a Union, Mo., school display. Right, a mixture of modern and realism.**



**A public hearing was held in Statesville on October 16, to hear the pros and cons of having the Wildlife Commission abolished and the responsibility for managing the State's game and fish returned to the Department of Conservation and Development or a newly organized sub-department of that organization. Wildlife Commission Director Patton made this statment.**

FIRST, we want to express our appreciation to the Conservation and Development Study Commission for your interest in hunting and fishing and for inviting us to appear and express our views to you on this important occasion.

It is with genuine concern that we approach the question of having the Wildlife Agency abolished and the responsibility for the State's game and fish returned to the Department of Conservation and Development, or any subdepartment thereof, from which it was divorced more than 21 years ago. Of course, we want to be objective and fair in everything we say to you about this, and we want to avoid leaving the impression that our position is motivated by what might be described as a self-serving interest. In considering this question we feel that individual personalities are relatively unimportant; that the common interest in the valuable wildlife resource is what we are seeking to serve for the benefit of our great State and its people.

It is a personal privilege for me to have been an employee of North Carolina, first as a summer student trainee at Lake Mattamuskeet in 1936, and then as a full-time game biologist beginning in 1939 under the Department of Conservation and Development. I have been with the Wildlife Resources Commission in my present position since 1948.

Since the Commission was established in 1947, six Governors and ten General Assemblies have charted its course, determined its destiny and given generous help and encouragement with its work. It is true, of course, that there have been rumors and rumblings about reorganization and abolition through the years, but the basic, time-tested principles upon which the organization was founded have held fast, served well, and sustained it. So you see the road we are on today has been traveled before.

Just a word about the bedrock soundness of the 1947 Legislative Act establishing the Commission as a separate agency. There are three basic elements in the Act that make it sound and that have made progress possible. First is that part of the law which established a policy-making, nine-man Commission with the responsibility for giving undivided attention to the wildlife program. Second is the full authority conferred by the Act upon the Commission to hire and fire an Executive Director; and third, that provision of the law which authorizes the Commission to plan the use of the hunting and fishing license dollars, subject to the Executive Budget Act and legislative approval.

In theory it might appear to be wise to bring all of the natural resources under one policy-making administrative roof. But let's stress those words "it might appear to be." Because wildlife, water, forests and parks are interdependent and interrelated it may seem logical that one department, embracing and administering all, would serve the best interests of all. But in actual practice, our experience here in North Carolina and our observation in many other states has clearly demonstrated that it doesn't work that way.

Why?

One of the principal reasons is that wildlife conservation programs are financed largely by hunters and fishermen who willingly contribute hunting and fishing license dollars for a wildlife conservation program, but who protest vigorously when this money is used for supporting other natural resource interests and other State work that should rightfully be financed by general fund tax revenue contributed by all the people. Under a separate wildlife agency, such as the Wildlife Resources Commission, the policy-makers and the administrator are seldom tempted to use hunting and fishing license dollars for the acquisition, development and protection of state waters, state forests, state parks, or other state projects with "color" of wildlife justification. When under pressure for such divergent uses the separate wildlife body can simply lean on the legislative mandate creating their agency and controlling use of the special wildlife fund.

Among the several important reasons for a separate state wildlife agency, the "finance factor" heads the list and relates to the others. Alleged misuse of hunting and fishing license money was one of the principal reasons for unanimous approval of the 1947 General Assembly in establishing a separate agency. After 20 years of close observation, I am convinced that any success the Wildlife Agency may now claim can be traced principally to its authority and obligation under the State law to apply its special fund exclusively to wildlife conservation projects without diversion to other interests.

If the administration of the wildlife program were combined with the administration of other natural resources, the other resources would gain but the wildlife resource would lose. We believe that the people of North Carolina will not want to see this happen.

Having said this, let me hasten to emphasize the importance of the cooperative approach. The separate Wildlife Agency has worked and must continue to work at this diligently if the total public interest in wildlife is to be properly served. While avoiding specific diversions of wildlife funds, it must help foresters manage forest game habitat so that we can have

sustained production of game compatible with the carrying capacity of the range. It must help farmers develop and improve wildlife habitat. It must cooperate with the water agency in monitoring and controlling pollution so that fish can survive and reproduce. It must work with state parks authorities on improveing wildlife values.

While insisting that our wildlife resources have great values that can best be protected and perpetuated by the undivided, dedicated attention of an independent agency of the State Government, the Wildlife Resources Commission has always striven and will continue to strive to make wildlife projects and programs compatible with and mutually beneficial to related interests—agriculture, forestry, soils, waters and even industry—all basic and vital to the well-being of Tar Heel citizens.

My time is nearly spent, Mr. Chairman. Nevertheless, I would like to take the liberty to say a few words about major accomplishments of the Wildlife Commission that have benefited the aesthetic, recreational, and business interests of all the people. While I could mention and discuss a long list, I will briefly cite only four typical examples of what has been done since this separate agency was started.

First is the Field of Conservation Education. Twenty-one years ago the Commission's magazine WILDLIFE was published bimonthly and sent free to about 1700 citizens who had expressed interest in receiving it. Today, WILDLIFE is published monthly and has a circulation of 117,000. All but about 7000 go to paid subscribers in return for an annual fee. Free "educational and advertising" copies go to school and public libraries, and to medical offices and barber shops where people wait and read. The large list of voluntary paid subscribers demonstrates growth and improvement and substantial public confidence and support for the Wildlife organization.

Second is the field of Hunting and Fishing Regulation which restricts and touches the personal interests of nearly 1,000,000 North Carolinians. Before 1948, this activity was given limited thought and attention and little effort was made to inform the people affected. Now hunting and fishing regulations are adopted by the Commission only after having followed a well-planned, orderly, annual procedure involving months of diligent work plus careful analysis and consideration of field studies and reports, voluminous correspondence, and detailed records of public hearings in each of the nine wildlife districts throughout the State. About 750,000 copies of the regulations are published annually for hunting and fishing license buyers.

Third is the field of Enforcement. One of the most notable accomplishments of the separate Wildlife Agency has been the improvement in its division of enforcement. Early establishment and strict adherence to a wildlife protector recruiting system based solely on high qualifications and merit has produced over two decades a group of 165 wildlife officers who are second to none in the Nation. A recent impartial national survey of all states by the Wildlife Management Institute in Washington, D. C., produced comparative performance records for state wildlife enforcement divisions and individual officers. In nearly every category of comparison, North Carolina and the performance of its individual officers topped the list. Diligence and undivided attention by the Wildlife Commission has produced this superior team of young, sharp men and made possible their outstanding performance. For many years the Wildlife Commission has maintained law and order with justice in hunting and fishing activities throughout the State. The firm, fair, impartial enforcement and administration of wildlife conservation laws has inspired public confidence and contributed substantially to an effective program.

Fourth is the field of Research and Management. I cannot emphasize too strongly the importance of the numerous major accomplishments of the Commission in these fields. It has applied knowledge gained through research to manage and produce game and fish in many locations throughout the State at a level of abundance not known since the turn of the Century. It has even been successful in introducing and establishing populations of some species of inland fish that did not even exist in the State before 1947. I wish there were time to cite and discuss in detail a few of the truly outstanding examples of successful wildlife research and management which the Wildlife Resources Commission has initiated and is now carrying on.

The above brief mention of accomplishments would not be complete without referring to Motorboats. In 1959 the General Assembly gave the Wildlife Commission responsibility for the State's motorboat program, including registration, regulation, enforcement, safety education, waterway traffic control, and development of facilities for access to public waters. Using motorboat funds and personnel available, the Commission has initiated and is successfully carrying on this important work. Tens of thousands of boats are registered annually, the death toll on waterways has been reduced, 85 boat access areas have been built, and traffic on several reservoirs has been regulated.

Some years ago, speaking to a group of sportsmen in Raleigh, Governor Dan Moore received a standing ovation when he said, "Let's keep the fish in our streams, the game in the woods, and WILDLIFE out of politics!" This is wise counsel and we believe that it can best be followed by an independent wildlife agency in our State Government.

Let me thank you again for this opportunity to appear.

**by Clyde Patton**
Executive Director
North Carolina Wildlife Resources Commission

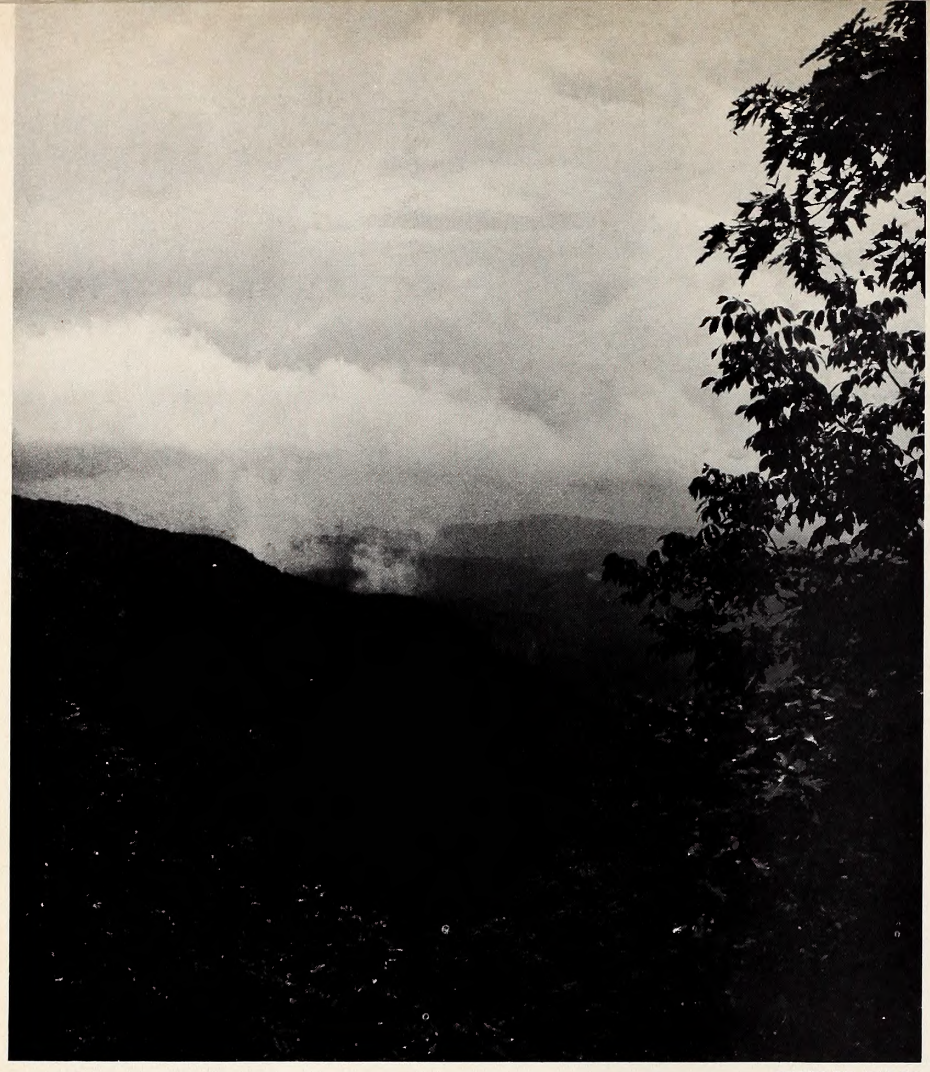


PHOTO BY JIM LEE

**Were they so good, these "good ole days"? What sort of a story could these Pisgah peaks tell?**

# "The Good Ole Days" on Pisgah

**by Clifford L. Bampton**

Supervisor
Western Wildlife Management Area

"THE good ole days!" is a phrase often heard in conversations about white-tailed deer. "The old days" always seem to have been better. Just ask grandpa, he'll tell you: the mornings were crisper, the game smarter, the hunters were all gentlemen —and good shots. And Pisgah . . . well you had better pull the nail keg closer to the potbellied stove and listen, while grandpa leans back in a rickety, cane-bottomed chair and the tall tales begin to roll out—stopped only by an occasional slug of tobacco juice aimed at the bulge of the red-hot stove. Everybody's grandpa loves to talk of Pisgah.

"The gold ole days" were great and hearing grandpa tell about them is fun. However, grandpa's tales are sometimes more entertaining than they are informative.

### What Really Happened

Let's take a look at what actually happened over the years to the white-tailed deer on what is now called the Pisgah Wildlife Management Area.

The Pisgah National Game Preserve was established by Presidential Proclamation in 1916 and at that time deer were apparently still very scarce in spite of the earlier stocking by George Vanderbilt. Approximately 25 more deer were secured from New York and Florida and released on the Pisgah Preserve. The herd built up between 1916 and 1935 was excellent because of many factors: intensive protection by the Federal government agents, extensive logging operations which resulted in an increased supply of browse, closure to hunting until 1932, and imposition of a "buck law" when hunting started.

The deer population zoomed from a few hundred in 1916 to about one deer per 20 acres in 1927. This tremendous population increase took place in just eleven years. By 1935 the population had rocketed to one deer per twelve acres, which was several times the carrying capacity of the range. At the same time the browse was growing out of reach and by 1938 the situation had become extremely critical. The tremendous overpopulation of deer combined with the decline in both quality and quantity of food and the outbreak of black-tongue disease, resulted in the death of several thousand deer. This "die-off" came too late to prevent extensive damage to the range. This is a classic example that once a deer herd becomes established it is impossible to control the population and keep it in balance by harvesting buck deer only.

Deer populations are influenced by habitat conditions in much the same manner as cattle are limited by the amount and type of pasture on which they feed. A pasture will support a definite number of cattle. If the rancher pastures a larger number of cattle than his land will support, damage is incurred, and the pasture is then able to sup-

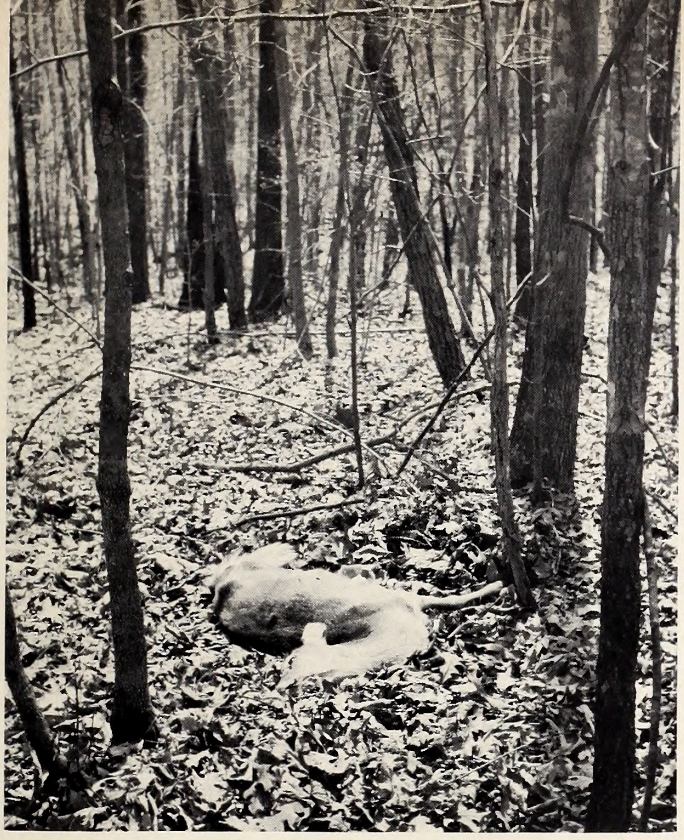


PHOTO BY JACK DERMID

**A big game management plan that contributes to waste of animals by starvation and disease is unsound. A deer herd should not be allowed to expand beyond the point of destroying its food supply. This happened on the Pisgah years ago and will not happen again. Note how the deer have eaten the grass outside the fenced enclosure.**

port fewer cattle. The planted grass and clover are eventually killed out and replaced by unpalatable weeds that the cattle will not eat. The same thing occurs on a deer range, but it is harder to see and measure.

### Native Vegetation

The carrying capacity of the land can be increased through prescribed management practices. However, a deer herd is primarily dependent upon the conditions of the existing native vegetation. Even with an improved habitat, deer herds can rapidly increase beyond the carrying capacity of the land. When an overpopulation of deer exists, not only do the wildlife resources suffer but other renewable natural resources are also adversely affected. The obvious answer to this problem is to harvest the surplus deer.

In areas of good deer habitat and low population, certain hunting restrictions are imposed to facilitate the rapid growth of the herd. Buck laws, under which only deer with visible antlers are harvested, is one method of accomplishing a rapid increase in deer numbers. Under a strictly enforced "buck law" a maximum of nine to twelve percent of the total population can be harvested. Since the annual production of fawns can range from 20 to over 50 percent of the overwintering population, it is apparent that a quick build up of the population is possible under this system of hunting.

This is what happened on Pisgah. Extremely high reproductive rates in the early years brought the population to such a high level that even with reduced reproductive rates in later years, buck hunting alone was not capable of holding the population at a stabilized level and it continued to increase—with catastrophic results.

### Slow Come-back

Following the "die-off" on Pisgah the deer herd again increased; however the present carrying capacity of the range is probably only one-half as great as it was in the 1930's. The waste of deer that we experienced in "the good ole days" on the Pisgah Wildlife Management Area could have been controlled, or at least minimized, by sound harvest laws. Both the deer and the hunter would have benefited by a realistic program of deer harvesting.

Pisgah has now sustained 36 years of hunting. During these years, hunting pressure and deer kill have fluctuated, but the long-term trend has been upward for both pressure and kill. In spite of these changes in hunting pressure and kill, the number of days required for a hunter to make a kill has changed very little over the years. Also, these success rate fluctuations on buck hunts occurred before doe deer hunts were started and continued after they were initiated.

The history of the Pisgah Preserve should teach us a lesson in deer management, yet many people still oppose "either sex" hunting. It should be obvious by now that if the hunters fail to harvest the surplus deer in our forests, Mother Nature will do the job for us—our choice is between legally harvested antlerless venison on the hunter's table or more waste through deer "die-offs."

Let us hope that the "good ole days" of the future will be the time when we finally realize that on areas where the hunting is adequately controlled, "doe hunting" is an integral part of good management.

# Our New Regulations for Hunting the Wild Turkey

by Thad Cherry
Wildlife Biologist

FOR a number of years now, it has been widespread knowledge that, generally speaking, North Carolina's wild turkey population is on the decline. Sportsmen and landowners have been asking why the Wildlife Resources Commission doesn't do something for the wild turkey before he becomes extinct. And the Commission has been studying and observing the wild turkey problem for quite some time now. It is apparent that the problem is quite complex and that its solution will involve not only wild turkeys and what is normally considered their biotic environment, but also—and necessarily very much so—the human element.

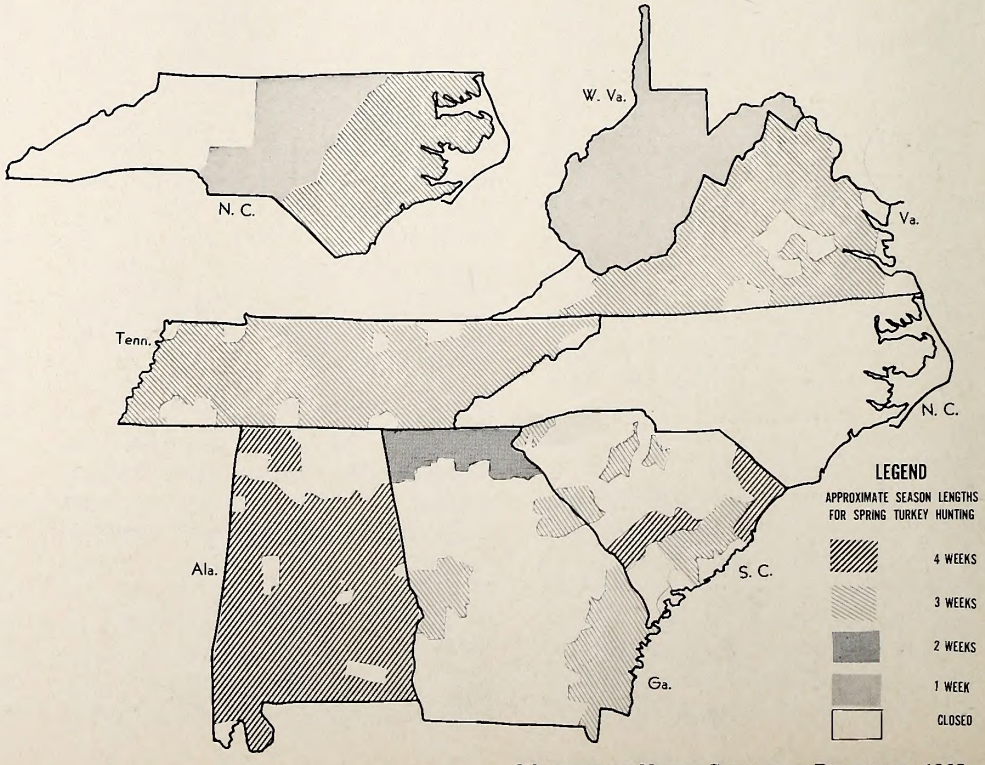
It has always been human nature to emulate someone else who is successful at whatever we are trying to do. So it has been with our wild turkey situation. While our wild turkey populations have been generally on the decline, those in most of the other southeastern states are reportedly on the increase, or at least holding their own. Annual kill reports indicate that most of our neighboring states are enjoying some fabulous turkey hunting, and that the sport is rapidly expanding in popularity. At the same time, our turkey kill is declining as is the number of Tarheel turkey hunters. Thus, the question invariably arises—"Why can't we in North Carolina have a turkey program like they do in . . . " The answer is that we can and we will!

Visits to neighboring states and detailed studies of turkey hunting seasons throughout the southeast revealed some interesting facts. It is evident that North Carolina has initiated a turkey program which compares quite favorably with that of any southeastern state. In fact, very few states in the country have a formal Wild Turkey Restoration Project as we do. Careful study did, however, expose one outstanding difference in North Carolina's turkey program as compared to those of the other states—hunting season regulations.

### "Outstanding" Seasons

When the fall and winter wild turkey hunting seasons of the southeastern states were plotted on a map, North Carolina's traditional three-month season stuck out like a sore thumb. (See maps). Nowhere else in the southeast did such a large area have such a long fall and winter season as did the eastern half of North Carolina. Wild turkey experts universally agree that such a widespread long turkey season is highly detrimental to any wild turkey population. The southeastern states having the best reputations in the field of wild turkey restoration have, for the most part, much shorter fall and winter seasons. The short seasons allow some traditional winter turkey hunting, but are not long enough to allow decimation of the turkey population.

When compared to the rest of the southeast, North Carolina also stuck out like a sore thumb




**Last year's spring turkey hunting seasons are shown on the large map. North Carolina had none. The insert map of the state shows the two spring season areas, the one week (left) April 14-19 season and the two-week season, April 14-May 3. Again check the current Hunting and Trapping Regulations for exact areas to be open. Perhaps these new seasons and areas will lead to better turkey hunting.**

**Replacement of the long fall season by a spring gobbler season is considered by many to mark the end of an era of declining populations of this magnificent game bird and the beginning of his return to the forests and fields of North Carolina.**

with regard to spring turkey hunting. Due primarily to strongly voiced public sentiment against spring turkey hunting, North Carolina has for several years restricted its spring hunting to a few western wildlife management areas. During the past few years, the other southeastern states have gone to spring turkey hunting in a big way. Some of the states offer nearly state-wide spring seasons.

It has been shown in these states that spring turkey hunting is a biologically sound proposition, and it is said to be the only justifiable way to hunt a struggling wild turkey population—whether it is increasing or decreasing. Wildlife experts everywhere have long wondered in amazement and bewilderment at our long fall and winter turkey seasons and no spring seasons—especially in the light of our admittedly declining turkey population.

For the 1968-1969 hunting season, the Wildlife Resources Commission has adopted what is no doubt the most realistic wild turkey regulations North Carolina has ever had. Our fall and winter season has been shortened and restricted to the Piedmont—December 21 to February 15. *If it is properly honored and respected by our hunting public,* this shorter winter season should benefit wild turkey populations as compared to the traditional long season in the following ways:

1. Turkey hunting will not be legal during the first nine weeks of the squirrel season—thus shortening considerably the time during which turkeys may be taken legally, incidental to squirrel hunting.
2. The overlap between turkey hunting and deer hunting seasons will be drastically reduced.
3. By December 21, young turkeys will be more mature and better able to look out for themselves. They will provide more of a challenge for the sportsman turkey hunter.
4. With the late opening of the short season, the turkey hunter will have the woods more to himself after the deer and squirrel seasons close.

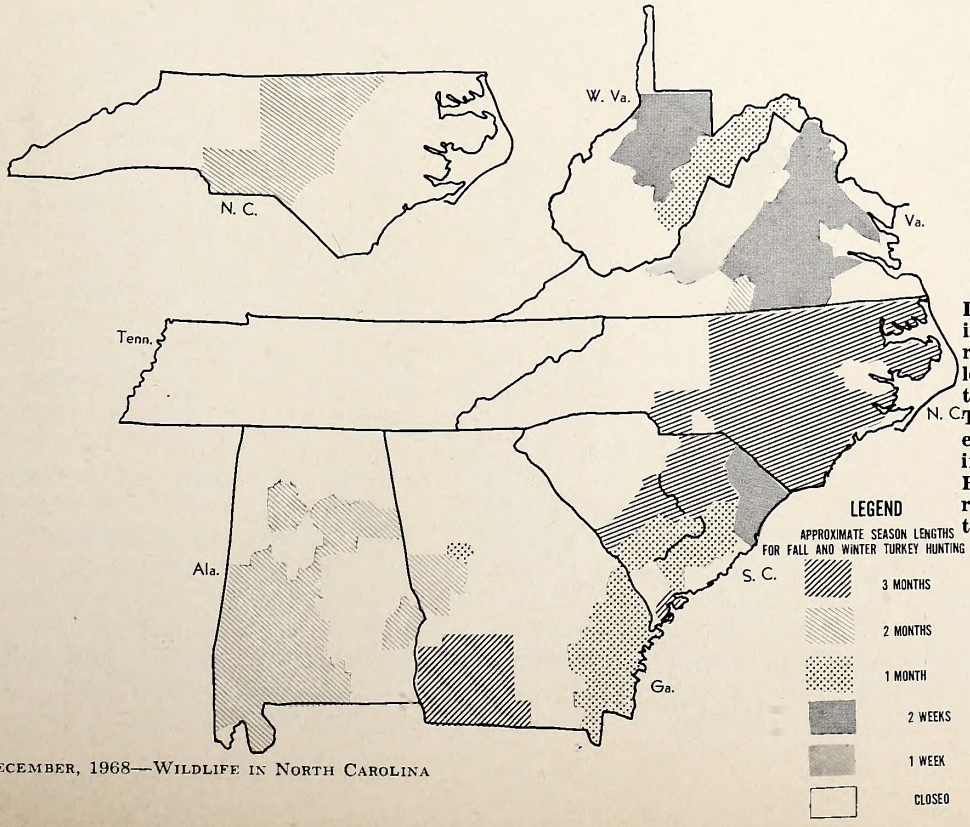
The 1969 spring turkey hunting season will provide a new type of hunting recreation in North Carolina. The seasons—April 14-19 in the Piedmont and April 14 to May 3 in the Coastal Plain are timed to come just after the peak of the turkey breeding season. Most hens will be fertile and on the nest by that time. The spring hunter's imitation of a hen yelp will be responded to almost exclusively by adult gobblers, who have aready served their annual reproductive purpose.

### Gobbler's Role

Contrary to an often-expressed belief, the adult gobbler in no way helps with nest building, incubation, or care of the young turkeys. One old gobbler will call up and mate with a harem of hen turkeys. One such mating is sufficient for a hen to lay an entire clutch of fertile eggs. After the peak of the mating seasons, most of the hens are on the nest and are less receptive to the tom's gobbling, and the spring hunter can call the gobbler to him by imitating the call of a lovesick hen.

During the legal spring hunting season, it will be uncommon for a hen turkey to come to the hunter's call. If a hen does, she certainly won't be strutting and gobbling as will the gobbler, and it will be relatively easy for any hunter to distinguish her as a hen. As compared to fall and winter hunting, spring turkey hunting drastically reduces the chances of killing hen turkeys. The other states report that spring turkey hunting has resulted in no appreciable nest desertion or any other adverse effects on reproduction. In fact, the removal of excess old gobblers is thought by many to be very beneficial.

Throughout the southeast, spring turkey hunting has the reputation of being hunting's most thrilling




**Last year's fall and winter turkey hunting seasons in North Carolina and surrounding states are shown here. The long, three-month season over the entire Tarheel turkey range stands out. The present, shorter and more restricted (area-wise) season is shown in the insert. It runs from December 21 thru February 15. Be sure to check the current Hunting and Trapping Regulations for areas of the state open.**

challenge. Studies indicate that it takes about 20 man-days of hunting for every gobbler killed. Nowhere outside North Carolina have I heard that spring turkey hunting is like shooting fish in a barrel, or that turkeys killed in the spring aren't fit to eat. In fact, comments have been to the extreme contrary. Also, it seems a bit ironic that some of North Carolina's most vocal opponents of spring turkey hunting have for several years been making annual pilgrimages to nearby states to hunt in the spring, and return to boast and show pictures of their kills.

### Different Hunting

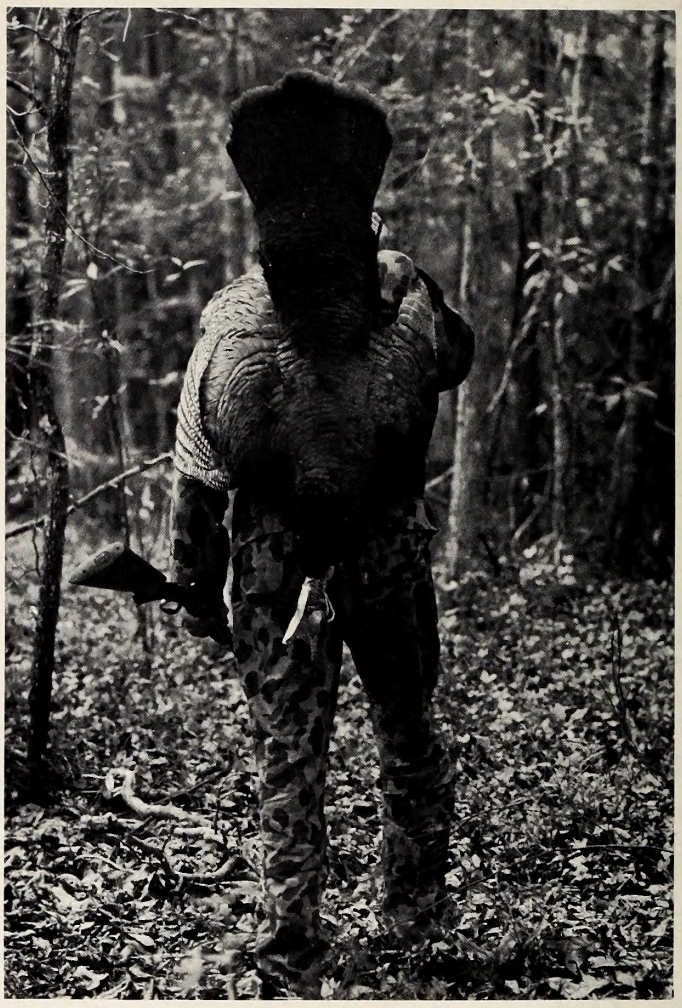
Admittedly, spring turkey hunting is entirely different from fall or winter turkey hunting. Perhaps the spring gobbler is somewhat more vulnerable to the gun than he was in the winter. But like deer hunting in the late fall, spring turkey hunting is seeking the trophy when he is at his prime—during the breeding season. At no other time of the year is the adult gobbler so beautiful, so boisterous and such a prime trophy.

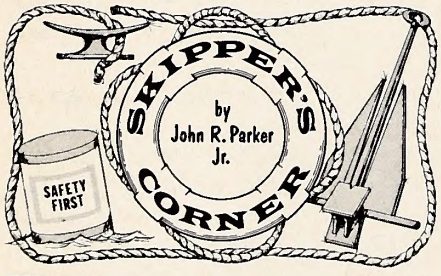
Fears have been expressed that with the new spring season the Wildlife Resources Commission will be encouraging many new turkey hunters to take to the woods. If we can do that and provide them a new and challenging form of recreation in a biologically sound manner, then we're doing our job. Remember, the Commission's motto is to "Provide more sport for more people, with equal opportunity for all."

Let's accept, support and enjoy North Carolina's new wild turkey hunting seasons as a long-needed step in the right direction. It is based on the biology of the bird, and our adherence to biologically sound regulations is the key to successful wild turkey restoration in North Carolina.

**The wild turkey is a magnificent trophy and a fine game bird. It will take imagination, careful study, and complete public cooperation to put him on the comeback trail. Remember, only toms are legal game; obey the law and have better turkey hunting in North Carolina.**

U. S. MARINE CORPS PHOTO






THE average North Carolina motorboat owner knew little or nothing of boat registration until the Federal Boating Act of 1958. The North Carolina Boating Safety Law of 1959, which includes among other things, boat numbering, was a direct result of the Federal Act. Prior to the North Carolina Boating Safety Law, only those motorboats plying the navigable or federally controlled waters of the state were required to be numbered. In those days, motorboats over 16 feet were numbered by the U. S. Coast Guard.

Under the Federal Boating Act, the states had the right to register boats in their waters. If this option was exercised, a state was at least obliged to register boats of more than 10 horsepower that were used in the federal waters of that state. State registration laws could go beyond the requirements of the federal government (most now do) but any system had to be approved by the U. S. Coast Guard. This was to assure numbering reciprocity between states, etc. Uniformity was the by-word.

By July, 1967, 47 states plus Puerto Rico and the Virgin Islands were numbering boats under approved systems. The Coast Guard is the numbering agent in the remaining states, but it now numbers those boats of more than ten horsepower used on federal waters, instead of by length as mentioned above.

Of the 47 states with approved systems, four have laws that cover registration of virtually all boats. Twenty-two number all motorboats (regardless of horsepower) and ten number all motorboats over 10 horsepower. (Texas is in a category by itself, numbering all motorboats over 14 feet in length and all boats 14 feet or under with motors over 10 horsepower.) Four number motorboats of 10 or more horsepower; one, all motorboats over seven and one-half horsepower; and another motorboats over six horsepower. Two states require the registration of only

motorboats over five horsepower; another, five or more horsepower. One state registers motorboats of three and one-half horsepower or more.

Boat registration has grown in North Carolina from approximately 36,000 the first year of the program, to 60,000 in 1967. The national total is now approximately 4,240,000.

The regulations involving the numbering of over four million boats vary to a degree, but there is a basic likeness. Remember we said that the various states could go beyond the federal requirements but had to meet certain standards of uniformity.

The North Carolina lawmakers chose, in 1959, to use the over-ten-horsepower requirement for numbering, as it remains today. There is, however, a national trend toward the numbering of all motorboats.

In North Carolina, boats of less than ten horsepower or non-mechanically powered craft, may be numbered if the owner desires. Further, the law excludes certain motorboats of over ten horsepower from numbering. These are:

1. Motorboats operating under a valid temporary certificate of number;
2. Racing motorboats, the operation of which on the waters of the State of North Carolina consists exclusively of competing in boat races which have been authorized by the N. C. Wildlife Resources Commission or by the U. S. Coast Guard;
3. Vessels documented by the United States Coast Guard;
4. Foreign vessels using our waters temporarily;
5. Boats owned by the United States or by a state, county or municipality;
6. Ships' lifeboats.

After about eight years with the Boating Safety Law, there are still violations of the numbering part of the law, even by experienced boaters. Unlike the motor vehicle license tag, the actual numbers and letters to be placed on the boat have to be purchased from one of thousands

**Protector Raymond Allen checks the Certificate of Number with the boat's number. Be sure that your number is properly displayed; have your Certificate aboard.**

of private businesses. The brand and quality of the numbers being purchased vary considerably. This, plus the fact that all of us are not as meticulous as we might be, makes way for the lesser violations in numbering display.

The law requires the owner to paint or firmly attach the number designated on the forward half of each side of his boat in a position where it may easily be seen, and no other number may be displayed on either side of the bow. The letters and numerals must be in block characters and at least three inches in height. They may be of any solid color so long as they contrast with the background color of the boat so as to provide good legibility. The number must read from left to right as it appears on the certificate of number, and the letter groups must be separated from the numerals by hyphens or by equivalent spaces, as in the following examples:

Right NC-264-A or NC 264 A
Wrong NC264A

The most common mistakes in the display of numbers are: failing to separate letter and number groups; using dark numbers on dark hull or light on light; amateur paint jobs are too often anything but block style; one or more numbers missing from the group.

The last of the discrepancies mentioned can be often prevented by properly cleaning and drying the hull prior to attaching the adhesive type letters. We might add that the stick-on-letter appears to be the most popular, and if properly applied, will last and last. A coat or two of varnish will add longevity.

But perhaps we have the well-known cart before the horse. To apply for a number, you must fill out an application which can be obtained from a boat dealer or the Motorboat Registration Section, Wildlife Resources Commission, Box 2919, Raleigh, N. C. 27602. Return this form along with a check or money order for $3.00 to the above address.

Once the certificate arrives, you will know your number. You can then purchase the lettering and apply it to the hull of your boat. The certificate of number must be kept on board at all times when the boat is in operation.

Don't forget to renew. The certificate expires on the last day of the calendar year. And if you wish to go boating on New Year's Day, you will need a new certificate. Renewal fee is $3.00. To help the boater in this, the Wildlife Resources Commission sends out renewal notices which also serve as registration applications.

A question that still arises is, "Will I get a new number each year" The answer is, certainly not. The number stays with the ship, like that proverbial Captain. If the boat is destroyed or abandoned, the number will be canceled and not used again. The

• **continued on page 31**

NORTH CAROLINA WILDLIFE

# RESOURCE-O-GRAM

## A ROUNDUP OF THE LATEST WILDLIFE NEWS

### Watch for January Issue of WILDLIFE

The January, 1969 issue of WILDLIFE magazine will be combined with the biennial report for the years between July 1, 1966 to June 30, 1968. Editorial content will cover activities of the Wildlife Resources Commission in the fields of fish and game management, wildlife protection, conservation education, boating safety, engineering, finance, and administration.

### More Dove Hunting in Store

The second segment of a split dove season gets under way at 12:00 noon on December 7 and will continue through January 11. Bag limits will be 12 birds daily, 24 in possession, with shooting hours from noon to sunset. Birds may be expected to be harder to find, since many grain crop fields have been plowed or otherwise cultivated.

### Better Law Enforcement on the Way?

According to the National Rifle Association, only one indictment was obtained by the federal government against a mail-order gun company in the thirty years since the Firearms Act of 1938 was passed. Under the mail-order pistol act signed June 19 of this year, it took the government only 12 weeks to make a case. "If this continues," said the Association spokesman, "it looks like the government will prosecute four or five offenders each and every year —a move that should quickly clean up the nation's crime wave."

### Game Habitat Materials in Short Supply

Due to a protracted drouth last summer, wildlife habitat materials for free distribution to farmers and landowners are in limited supply this year; shrub lespedeza seeds and seedlings as well as annual game food seed mixtures will be distributed on a first come first served basis. Persons wanting these materials should make application immediately. Write: Division of Game, Box 2919, Raleigh 27602.

# What To Do Until the Taxidermist Arrives

by Luther Partin
Photos by the Author

A handsome, full-plumaged canvasback drake like this one, is a real prize. Mounting preparation begins here as soon as the bird is bagged. Use the bill in handling to avoid damaging the plumage. Protect it well during the trip home to work table or freezer. One broken wing feather can ruin a perfect specimen.

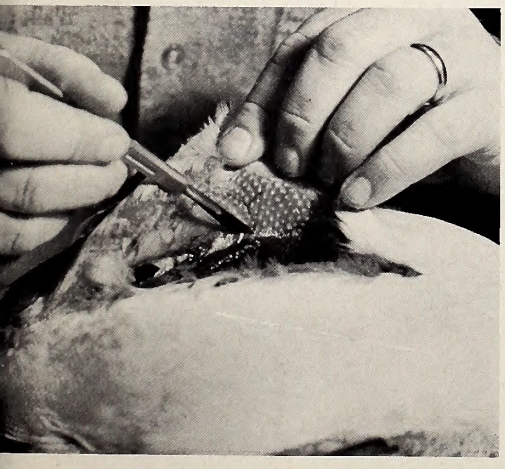
HAVE you ever been tempted to have a wildlife specimen mounted and then discovered the cost? Perhaps you then toyed with the idea of doing it yourself and in a moment of truth admitted you weren't a taxidermist. If you have, don't feel alone anymore—so have at least a dozen other people.

As far as the cost is concerned, don't begrudge the taxidermist his fee; he could probably make more money for his time by cleaning out gutters. And while it's true everyone can't be a taxidermist, many people can do a creditable job with a little help and lots of desire.

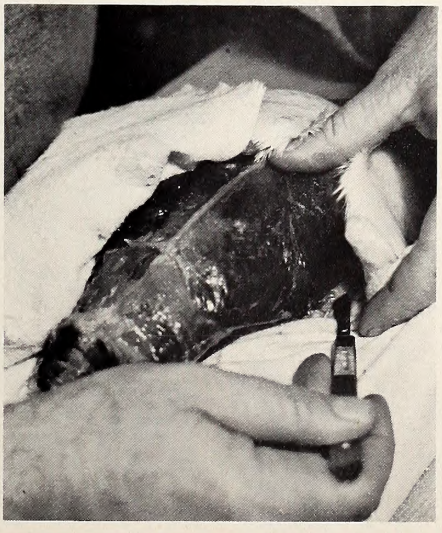
For the help, look under Taxidermy in the classified ad section of one of the commercial outdoor magazines. You'll find correspondence courses for learning to mount anything from fish to fowl to furbearers. In addition, some of the large mail order sporting goods supply houses offer a package deal for one bird or animal. They furnish everything you need, including instructions, to mount one specimen. And the price is quite nominal.

Four years ago Bryan Upchurch hardly knew a duck from a goose and even less about taxidermy. Since, he has collected and mounted every species of migratory waterfowl in the Atlantic Flyway. He has already begun to replace some of his earliest works with better plumaged birds that also demonstrate how skilfull he has become in a very short time.

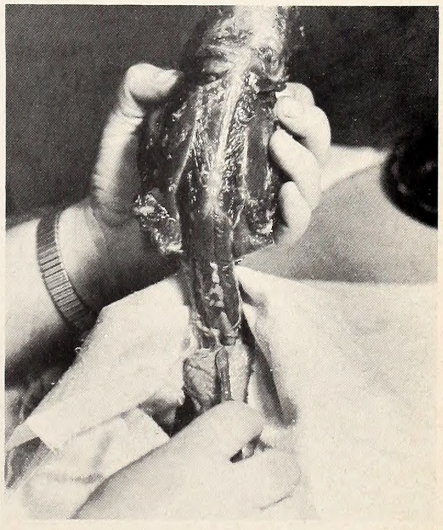
The accompanying photos show how Bryan mounts a nice canvasback drake. The photography took place over a period of time, necessarily, and a couple of hours at the time. The cutlines will reveal the time lapse between the various stages of preparation. ▲▼



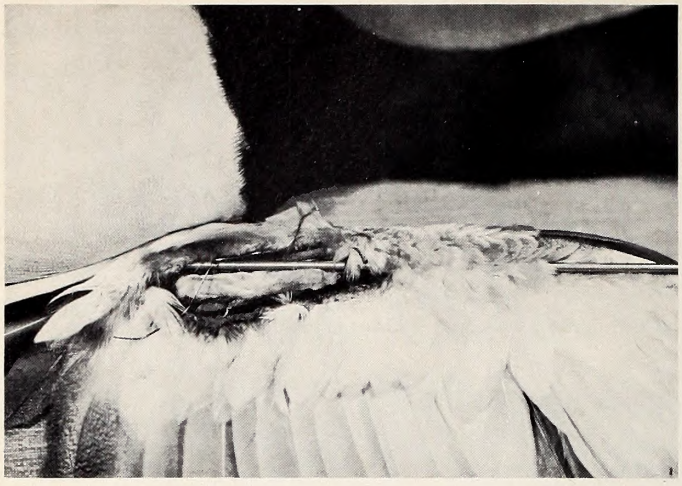
1. Allow 12 hours to thaw the bird. Materials needed include scalpel, tweezers, pliers, suture needle, waxed thread, potter's clay, and a borax-base preservative like Calorax. Part feathers carefully and make first incision down the breastbone.



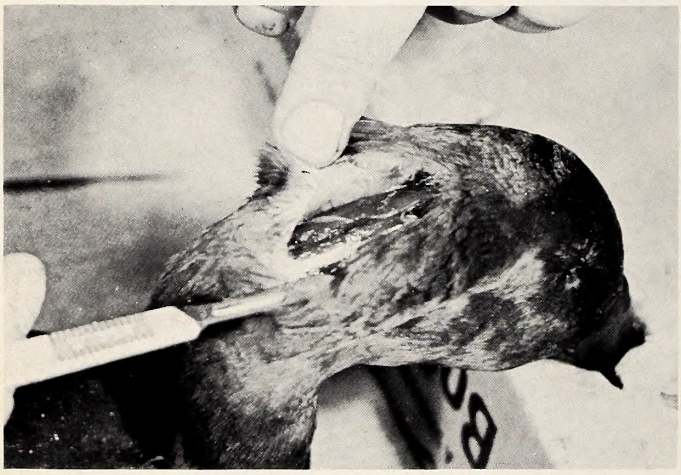
2. An old towel will absorb blood as you work carefully down the legs and wings. These are cut off at the body to be handled later. Continue skinning until the body is free.



3. Then work up the neck to the base of the skull and remove the carcass. If you're ready to call it a night, wrap skin and attached parts and place in freezer. Save the carcass for the table.

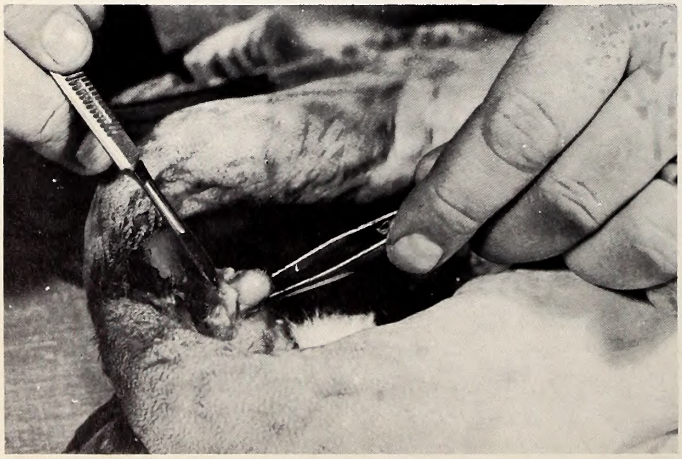


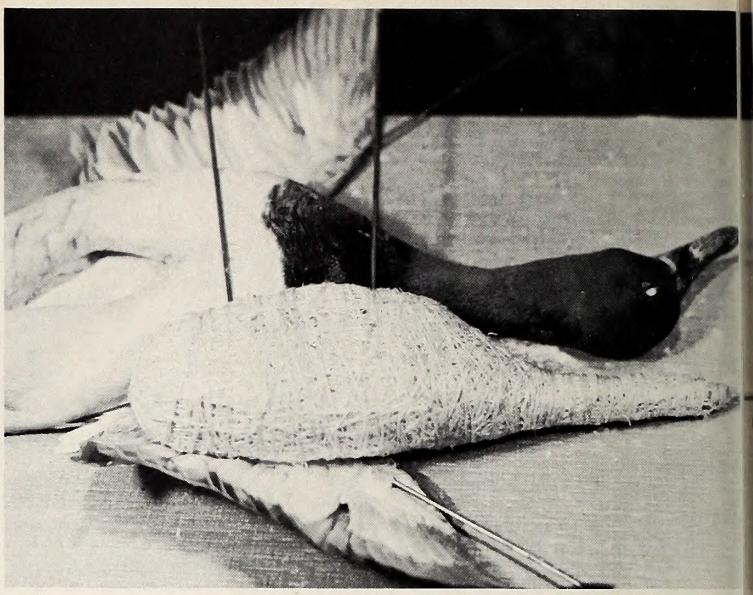
4. The next step calls for cutting along the wing muscle; use tweezers to remove flesh here. Annealed wire is fastened to the wing bone and the cavity filled with potter's clay. The wire will later be attached to the new body to support the wings. The legs can be pushed into the body cavity for flesh removal. Wire should be attached to them for fastening to the body later.



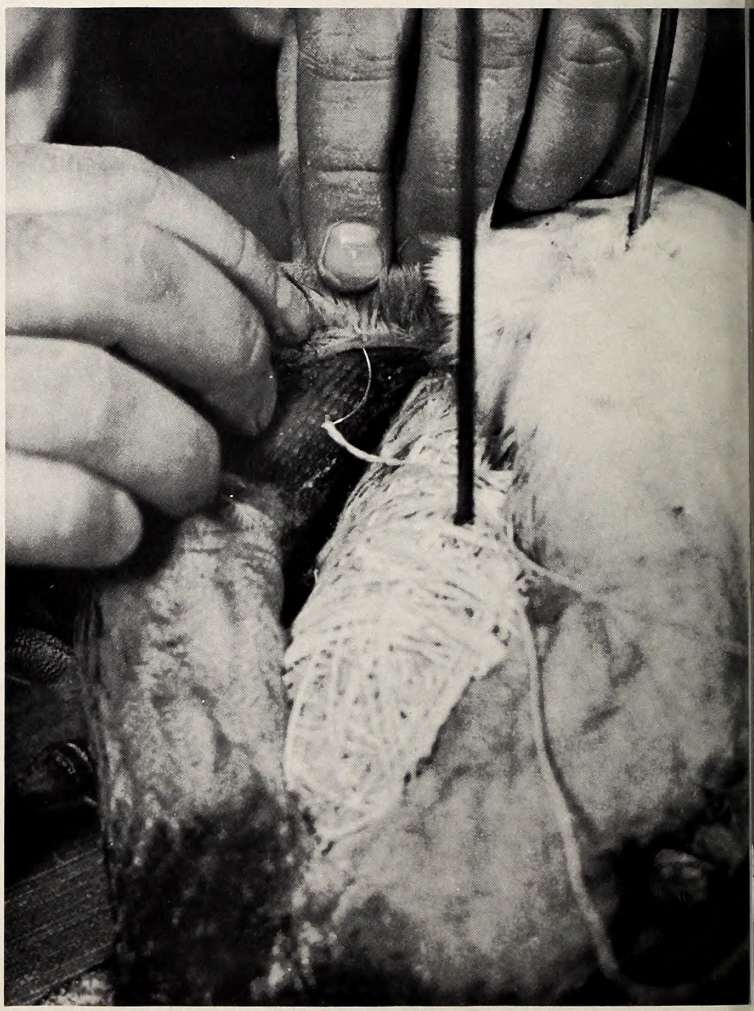
5. Removing the flesh from the head takes time. A small incision will permit the skull to be pushed through and skinned to the base of the head. Remove eyes, brain, tongue and all flesh—leave only bill and bone. Don't worry about blood on feathers; cold water will congeal it, Calorax absorbs it, is brushed off.

6. Removing the oil glands will help prevent unpleasant odor and feather slippage later. Cut a V-shaped notch in the soft bone anchoring the tail feathers to allow them to be fanned out before drying. Apply preservative generously to skin, skull, and cavities, wing incisions, etc.

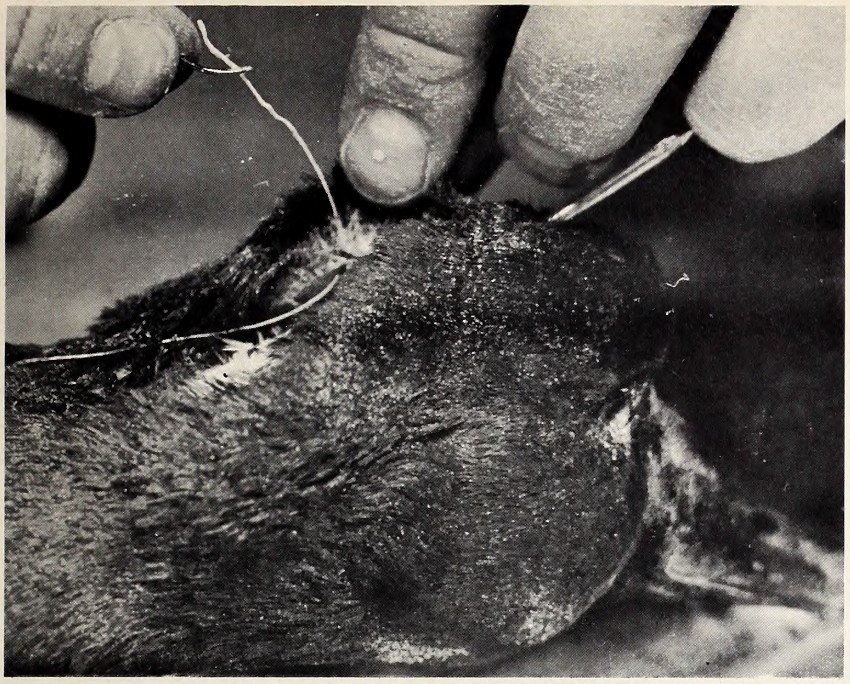




7. Bodies can be purchased or built from excelsior, string and wire. Two of the wires will be used for mounting, the other for attaching to the skull. This commercial body had to have extra excelsior on breast and neck to fill skin. Place the body within the skin and attach the leg and wing wires.

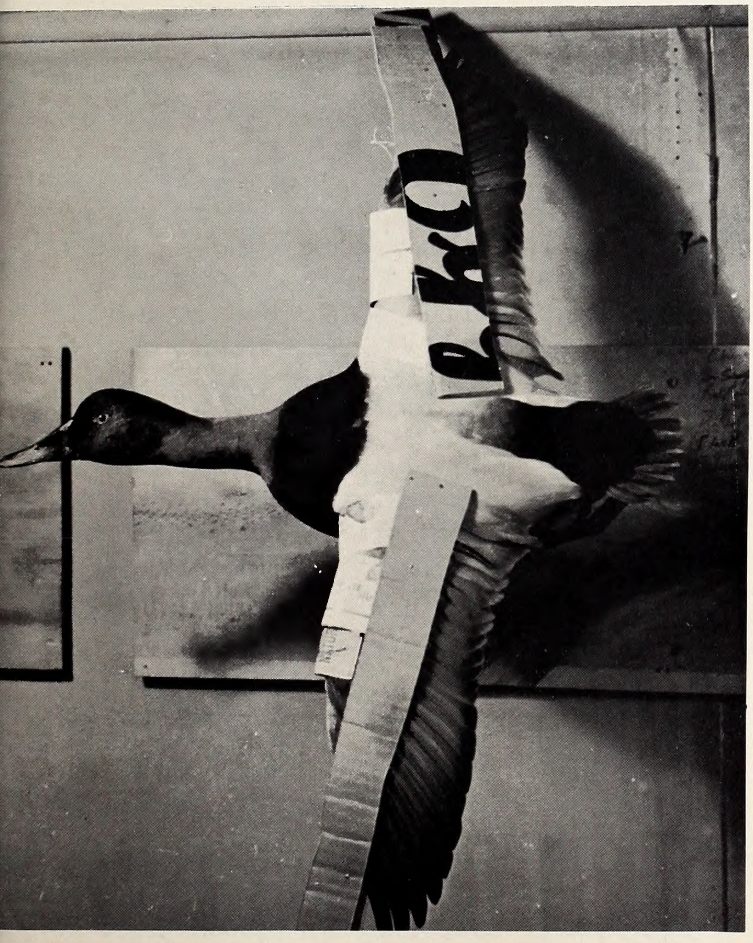


8. With a suture needle and waxed thread, stitches are made from underneath and pulled tight, but don't pucker the skin. Skill improves with work, so don't be discouraged with first efforts. Use excelsior as needed to rebuild body parts to their former shape and size.



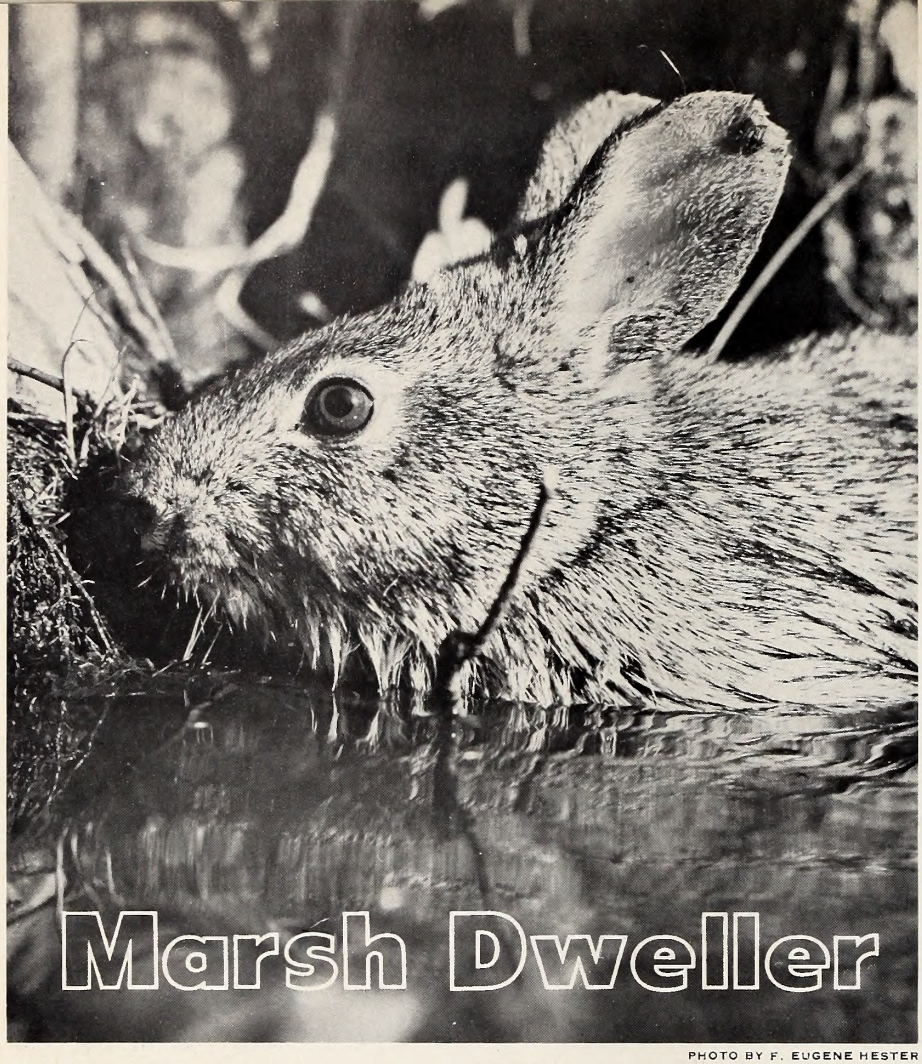
9. The head has been rebuilt with clay to replace flesh removed. Neck wire has been extended through skull to be clipped later. Artificial eyes will be imbedded in the clay. Use a soft brush to remove powdery preservative.

11. After drying (below) the bill, legs and feet are restored to their normal color with oil paint. The plaque can be purchased or made. The problem now is where to hang it. Better leave that to the womenfolks.



10. Cardboard strips are used to hold the wings in place until the drying process is complete, usually about three weeks. The plaque wires here are inserted into a temporary mount.

**For more details on this complicated task of duck taxidermy, better check on a good book on the subject. Remember, too, to obey the State and Federal game laws while taking any specimens!**



# Marsh Dweller

PHOTO BY F. EUGENE HESTER

**by Frank Mooney**

MOST folks know the cottontail rabbit as the upland game animal young boys and old men spend a lot of time and money hunting. But the cottontail's cousin, the marsh rabbit, is a stranger in most sections of North Carolina. Although the marsh rabbit (also called swamp, bay or branch rabbit) is a native of the Coastal Plains of North Carolina and behaves much like the cottontail when chased, the habitat of each species differs. Their range overlaps, but usually when each rabbit has bedded down for the day within shotgun range of each other, the cottontail will be in a high broomsedge field, and the marsh rabbit will be in the dense growth of a nearby swamp.

Often, when pushed by dogs, the marsh bunny will readily take to water, even deep water, to lose its pursuer. This nocturnal creature loves the water and makes a tricky target both swimming or on dry land. Most marsh rabbits are killed at close range, because this sneaky swamp lover is about as difficult to see as an annual raise in your monthly check. The sly rascals often have paths under the grass and weeds, and unless a hunter gets near the path, all he will see is the grass shaking as the rabbit sneaks along just ahead of the dogs. The cottontail, on the other hand, often speeds some distance ahead.

Marsh rabbits, darker than the cottontail, vary in color, but most are black along the shoulder and back, and usually have longer bodies than the cottontail. The marsh rabbit's ears are rounder than the cottontail's, his feet are smaller, and his bluish-buff colored tail is about half the size of the cottontail's fluff. The marsh rabbit reacts very much like the black bear: when pursued by dogs, it finds the thickest place in the flats or swamps to run. With a little experience one can often predict the route he will take when he is flushed.

At times you can see the marsh rabbit swimming around in the swamp like a muskrat when the beagles push him too hard on land. Often in the flooded flats a hunter can hear this elusive target running in the water before he sights it.

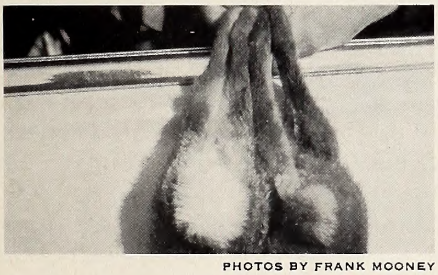
THE marsh rabbit's range is along the coastal regions of southeastern Virginia, North and South Carolina, Georgia, southern Alabama and all of Florida. The swamp rabbit, which is larger than the marsh rabbit, inhabits the western Gulf Coast, northern Alabama to southern Texas, southern Illinois and southern Oklahoma.

A friend of mine, who has spent many hours hunting, fishing, and trapping, and is highly skilled in woodlore, once told me of an incredible experience. Early one morning while on Juniper Creek in Brunswick County, he heard a rabbit coming through the forest squealing loudly and coming his way fast. The marsh rabbit ran onto a log protruding over the river and leaped in with a splash, followed closely by a mink, then a gray fox. The trio quickly swam the stream which was 25 or 30 yards wide. The mink and fox continued in hot pursuit across the stream. The marsh rabbit was still squealing at the top of his voice as he cleared the further bank and disappeared into the brush with the mink and fox in hot pusuit on his heels.

Rabbits are hunted unmercifully by most predators, and serve as a staple diet of both ground predators and birds of prey. Without their high reproduction rate, the rabbits would soon be added to the rare or extinct list.

One afternoon a group of hunters following six beagles, hunted an abandoned hog pasture where most of the land was under four

**A mixed bag of cottontails and marsh rabbits. In the photos below, the marsh bunny is on the right.**



PHOTOS BY FRANK MOONEY

to six inches of water and made ideal marsh rabbit country. We killed cottontails on both sides of this flat, but in the thick brush where myrtle, gall berry, greenbrier, and grass made walking a problem, the marsh rabbit was abundant. At times the beagles ran three different rabbits before we could bag one.

In the pasture, where the area was cleared, were suitable dens for most wildlife. Bobcat tracks were plentiful around a small pond where the soft dirt made tracking possible. Several rabbits scampered into nearby windrows when pushed by beagles. Some rabbits have mated by the end of the hunting season and expectant mothers often hole up to escape the dogs: it's one of Nature's ways of conserving the rabbits and their offspring.

When the rabbits were jumped on the lower end of the pasture, near the swamp, they would head that way and lose the dogs in the deep water. After losing two in the swamp, I stationed myself at the fringe where I could cover an opening along the fence.

In a few minutes another swamper was going, and after hearing someone shout "he came by me but I didn't see him until after he passed me,"I got ready. The little beagles were crowding the bunny and I saw some grass shake and knew he was coming my way. I fired as he cleared the grass.

After one of my buddies bagged one, another one of the group said, "that rabbit came by me just a minute ago and I thought it was a dog." We had two small black beagles along on this hunt and had to look close in the grass before firing. One of the other hunters told me that once while on a deer stand in the swamp, he saw a marsh rabbit sitting in water which almost covered its back.

Frequently we climbed up on a stump or mound for a better view. Often three or four-foot height will give a clearer view over twice the area. Almost any dogs can be used to jump this sporty game animal, but the beagle is my choice because of the dense terrain in which the marsh rabbit must be tracked. Larger dogs have trouble getting through the briars and heavy undergrowth.

IN marsh rabbit country, a good jump dog is a must to consistently put meat in the pot, because the dense brush makes it impossible for the hunter to flush many. Marsh rabbits may be plentiful in an area, but without a good jump dog one might think the place had been overshot. This animal usually has to be kicked out before leaving the bed. If rabbits are plentiful the hunter also will be able to observe their paths and droppings. The droppings will be found in or near water and will be larger than those of the cottontail.

I have found during my years of hunting that when rabbits are pushed by dogs, they usually return to the locality where they were first jumped. The marsh dweller never gets as far in front of the dogs as the cottontail. Perhaps this is why he makes such a large circle before returning to his starting point. Keeping this in mind, when the dogs jumped we would hurry to a point near the dogs each time they jumped one but often the rabbit would slip by without notice even though the dogs came within 20 feet of where we were standing. Someone would holler "don't let the rabbit run over you" or "you should have killed that one," then everybody would get set for another round. It takes sharp eyes to spot this game animal in dense cover.

This rabbit, unlike the cottontail, will walk instead of hop. This looks a bit odd after hunting the more familiar cottontail. Another in the party jumped one while walking over to the dogs which were already burning down a hot scent left by a busy critter doing his best to confuse the dogs. He fired as the rabbit faded into a clump of evergreens, but as he entered the clump to find the "dead" prize, the untouched rabbit cleared the other side and I dropped it.

At a pile of logs, we had one sneaky rabbit between two of us. The critter would head my way, then stop and go back toward my companion. After the dogs almost caught it flatfooted, the bunny sped past me to make another circle before it was finally killed.

In 3½ hours, we bagged eight rabbits and probably ran that many more. At one time there seemed to be dogs running rabbits everywhere. When we stopped around sundown and the dogs were called off a chase, the place was still crawling with rabbits. So many had run and criss-crossed each other that the dogs could find a fresh scent almost anywhere.

So when you want to enjoy a great sport, and a change of pace, head east or southeast and try the marsh rabbit. And don't forget your waterproof boots. ▲▼

# A Walk With a Naturalist

by Steve Price
Photos by the Author

THE first time I met naturalist John K. Terres, he was listening to a bird study program on his car radio. I wasn't surprised. A man whose entire life has been devoted to bird and animal study—who has edited dozens of nature books, written several more himself, and served as editor of *Audubon Magazine*—his choice of radio programs wasn't at all surprising.

We had planned to walk together that day, over part of the University of North Carolina's 800-acre Mason Farm, located on the southern edge of Chapel Hill. Terres goes there often to observe and study wildlife, and I wanted to go along and get acquainted.

He's a well-built man, with brown eyes that continually smile behind a pair of dark framed glasses. His graying hair is beginning to betray his age of 62, but he walks easily in the woods, as one long accustomed it it. A pair of binoculars is his constant companion.

Our first stop was on the edge of a large field, bordered on one side by a tall, silver-colored wire fence. "Do you see that bird sitting there on the post?" Terres asked. "It's a kingbird, one of my favorites. Let's see if we can call him." Terres whistled a few notes and smiled as the bird answered.

We walked a bit further to a small wooden box attached to the fence. It had a small opening in front, about the size of a silver dollar. "This is a bluebird box," Terres said, taking a dime from his pocket and unscrewing the front door. There was no nest in the box, for the birds had not yet discovered it for the mating season.

"I call this the Bluebird Trail," said the naturalist as he re-tightened the front door, "In 1963 another bird watcher and I started this project, putting up over 50 bluebird homes throughout the area. We had over 80 percent occupancy the first year.

"Bluebirds will only nest in the tree holes made by woodpeckers or some other birds," Terres continued. "They won't make their own hollows, and they won't nest on the ground or in bushes, as do many birds. We've had some severe winters here over the past few years, and much of the bluebird population has perished due to this housing shortage. That's why we began to make the Bluebird Trail."

As we stood talking, a large rabbit jumped into the path ahead of us and waited a few seconds before continuing into the weeds. Terres trained his binoculars on the animal. "It's a female cottontail," he said. "She looks like an older adult, too, which is unusual for rabbits. Hawks, owls or foxes usually get them before they grow so large. For a rabbit in the woods, two years is old age.

"There is an amazing amount of wildlife here on the farm" Terres continued, "I've seen rabbits, raccoons, foxes and even wild turkeys during some of my walks here. There are dozens of birds, too. I'd like to turn the farm into a nature preserve someday."

WE continued to walk through the trees, and Terres kept scanning the ground ahead of us, looking for wildlife. Leaves rustled to our left, and Terres identified a black racer snake as it dashed into the underbrush. Moments later the whirring of wings told us we had startled several quail.

We talked about wildlife as we walked, and about writing, for Terres writes about the wildlife he observes. He began doing magazine articles for *Coronet, Better Homes and Gardens,* and *Audubon* while in New York as a field biologist for the United States Soil and Water Department after World War II. It turned into an editor's job for *Audubon,* the world-wide magazine publication of the National Audubon Socieity. But on evenings and weekends Terres wrote at home in his New York City apartment, working on a book about birds. Its title was "Songbirds in Your Garden," and it was first

**John Terres checks a bluebird nest box along a Bluebird Trail on the Mason Farm. Note the hinged front on the box.**

published in 1953. This past June, after the book had sold over 150,000 copies a revised edition was published, and is selling just as well.

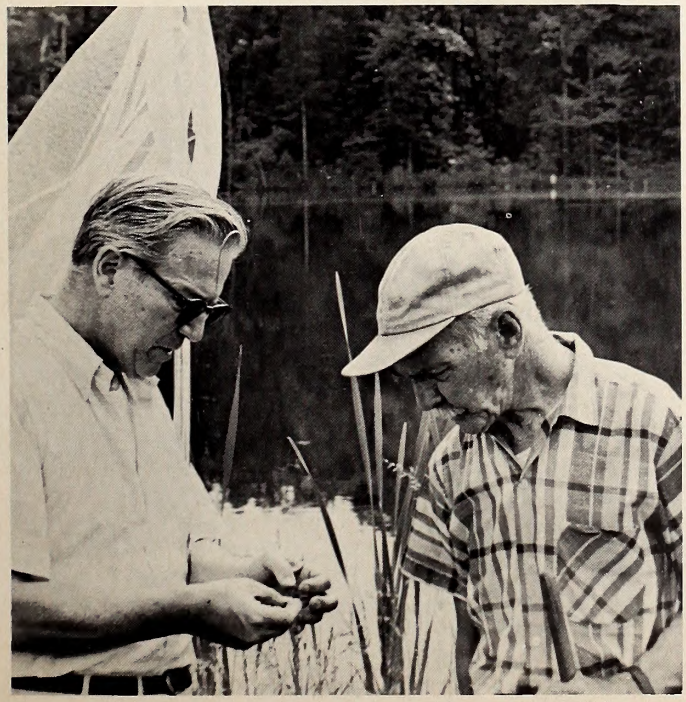
In 1960, after a dozen years with *Audubon*, Terres retired, and upon the advice of a friend, moved to a quiet side street in Chapel Hill where he could devote full time to his own writing. He has been working on several books, including a 500,000-word bird encyclopedia that should be completed this December, and "Flashing Wings," which appeared on sale earlier this year. He is also writing a comprehensive study of the wildlife of Mason Farm entitled "Search the Wide Land."

He has edited some 30 other nature books, including the popular Lippincott "Living World" series and the twelve-volume Audubon Nature Encyclopedia.

"I've always been interested in nature," Terres told me as we continued our afternoon walk. "I was born in Philadelphia, but our family moved to a southern New Jersey farm when I was very young, so I spent most of my childhood growing up with nature all around me. I was always running around catching frogs and snakes and collecting insects when I was a youngster—I don't see how my mother stood it."

Terres still collects insects, as well as plants and unusual flowers. When he sees something he can't readily identify or something he wants to study further, he uses his specially-made collecting net to capture it. Of about 30 different species of dragonflies found in this area, Terres has over 20 of them, but still insists he is still just an amateur collector.

We reached the second house on the Bluebird Trail, and Terres paused to check it. There was a nest inside, and the naturalist smiled. "I watched the young ones here learn to fly."



**The naturalist adds another dragonfly to his collection of over 20 species. He uses a specially-made net.**

A brown wasp flew in front of us then and Terres identified it immediately. "These don't usually attack," he reassured me as I ducked for cover, "but they do like to build their nests in my birdhouses. I have to clear them away before the bluebirds will come, but once the birds establish themselves, the wasps don't worry them."

Our path led us then along the edge of a dense hardwood forest. "I call this Big Oak Woods," the naturalist said, "and that wooded area behind us is Laurel Hill. The swampy area right over there is Siler's Bog, where I've found the nests of a horned owl and a pair of red-shouldered hawks.

"I've found the hawks' nest for each of the last four years. They always move, and sometimes it's taken me quite a while to find them, but they've never left the farm." In other studies, Terres banded a cottontail one summer and observed its movements on the farm for three months. Other times he has gone to the farm at night to watch the feeding habits of raccoons, or in early mornings to search for wild turkeys or gray foxes. He spent three years studying and finally capturing the tiny golden mice that inhabit the farm, and he has had flying squirrels as pets.

"Animals are nearly like people to me," he said, as we approached a third bluebird box. "I don't like to hunt because I'm more interested in the lives of these animals. I don't mind other people hunting, if that is what they enjoy, but I can't do it." Terres made a special trip to the farm one morning last fall to return a captured caterpillar he had been studying. He was going to New York the next day and was afraid the caterpillar would die before he returned.

We passed the bluebird home before Terres realized it and we retraced our steps to the pine tree where the box was located. The home was empty, but the nest lay on the ground a few feet away. "The birds have already left," he said, "and one of the graduate students at the University who is studying bluebirds has emptied the box. Bluebirds won't return to the box if it isn't cleaned after each nesting."

Our afternoon walk was drawing to a close now, for we had been traveling in a giant circle over a part of the farm, and now we were nearly back to our starting point. Suddenly Terres stopped and looked back to the woods behind us. "Did you hear that?" he asked excitedly. "It was the red-shouldered hawk calling its mate. Let's see if it's repeated."

We waited for the unmistakable keee-yerr cry but it did not come again and so we walked on. A cardinal passed overhead and a red-winged blackbird landed in the shrubbery beside us. Another kingbird sat on the tall wire fence. Terres looked relaxed, happy, and glad to be alive.

He and I have walked together through field and forest many times since that first spring day, and each time I learn something new. I guess that's the way it is when you have a teacher like John Terres. ◆

# Our Priceless Heritage

by James C. Wallace

Associate Professor of Social Sciences
North Carolina State University

WE live in a world of quantity. Our vast technology, with its unprecedented power, serves as the background against which the daily affairs of our society are carried on; and the habit of quantitative thinking, so difficult for former ages, has become a commonplace. Miles and hours, ergs and pounds, watts and Angstroms, dollars and drachmas. These words, and thousands like them, are the coinage of our time.

In the marketplace, where measure was born, every good and every service has its price, and when all of these are added together, we are pleased to refer to their sum as the Gross National Product. This concept, named with such exquisite aptness, represents a kind of national price-tag, an annual summation of our "production."

But there are many *un*priced commodities — strangely enough we call them "priceless"—whose value is not reckoned on our national calculating machine. These are the basic resources which, until now, have always seemed to be in endless supply, and which have contributed the most to Man's happiness on this Earth. They constitute our natural environment — the air, the water, open space, wildlife, forests, quiet and beauty.

These irreplaceable resources, unprotected by adequate price-tags, are now being destroyed on a global scale. Yet, because the ultimate reckoning is only dimly perceived, and the economic gain lies near at hand, the appetite of our undirected technology, powered by a syndrome of growth and greed, continues to increase. Most of our leaders in business and industry remain mesmerized by the rising lines on the "production" charts. Few of them realize that the state of our economy is not wholly characterized by the rate of growth of the GNP. Fewer, still, seem to understand that a Gross National Product implies both a Gross National Consumption and a Gross National Refuse.

The rivers and lakes, the land and the air, are being fouled because they are free, because they are "price*less*"; and if they are to be saved, if, indeed, our civilization is to be saved, we must quickly place upon these elements of our natural heritage a "market price." As a guideline to the establishment of such a price system, we might begin with the most commonly used notion in the casualty insurance business, that of "replacement value." When America's corporate income and expense statements begin to show realistic figures for the damages inflicted by industry upon the environment, it will presage the rapid and permanent decline of such destruction.

In short, we should not permit the word "priceless" when used to describe the great natural endowments of our land, to imply that these resources are without price, and hence may be corrupted free of charge. Rather, we must learn to treat our environment with that high degree of deference which is usually reserved for great and enduring works of art. Our "priceless" heritage, if generations yet unborn are to share its benefits, must be placed beyond the reach of our grasping times. It must be, in truth, *beyond* price.

But the here-and-now has clout to spare, for the short-term gain is hard to resist, and the long-term loss is hard to define. Thus the natural world declines and its counterfeit ascends, while a crude and blind indifference marks the change. An artificial world, domed and tamed for man alone, with wildness gone and nature banned, now lies in early prospect, and this awful vision, such a pallid recompense for what is being lost, enjoys the casual esteem of many people.

What, after all, some of them ask, does it really matter? Granted that Man has always been a part of Nature, has been a partner *with* Nature, does it follow that an artificial environment will be necessarily bad? And are we not, within a fairly short period of time, looking forward to manipulating our genetic structure, and thereby removing defects and improving the race? And, besides, if things go wrong, can we not take care of that situation when it arises?

Such is the simple faith that most of our citizens have reposed in our technology. It is this abiding trust in our unlimited capacities which muffles the voices of alarm and paralyzes corrective action.

It is difficult to explain, as the ecologists are finding out, that Man occupies only a niche, albeit a large one, in the scheme of things. It is hard to get across the idea that Man is a product, two billion years in the making, of his Earthly habitat. It is obscure, to many, that Man is part of a vast and complex web of life which had its beginnings in the distant ages of geological time. He is, in fact, what the world has made him, and he is attuned to its workings with a precision surpassingly fine. His cycles are the cycles of the universe he inhabits. His sleep and wake are the domain of the Earth's rotation. His genetic material, packed with painfully culled information starting with life's first day, lies within him in safety, as it has for millions of years, maintained there at an unchanging 37° Centigrade.

If Man has any meaning at all, then it is meaning in relation to his environment. Without that environment, Man is an absurdity; a mobile bi-pedal computer, programmed for a world long gone. Product of sun and rain and ice, and wind and wilderness, imprisoned within a sack of Pre-Cambrian sea water, watcher of birds and wisher for stars—how will it be to sit on the asphalt plain, alone beneath the sodium glow, the last of the partners in the great adventure?

This is our ultimate fate. If we persist in destroying our environment, we shall destroy ourselves, for we are nothing without it. And should the day come when we finally succeed in separating ourselves from the last vestige of our inheritance, let us not mistake this sad occasion for some species of conquest, for it will be no such thing.

It will be the end of a lengthy retreat, and the beginning of an endless wandering through the reaches of an indifferent universe, in search of a meaning which was left behind. ⬍⬍

This article is reprinted from the **North Carolina Architect,** Vol. 15, Numbers 6 & 7, June and July, 1968.

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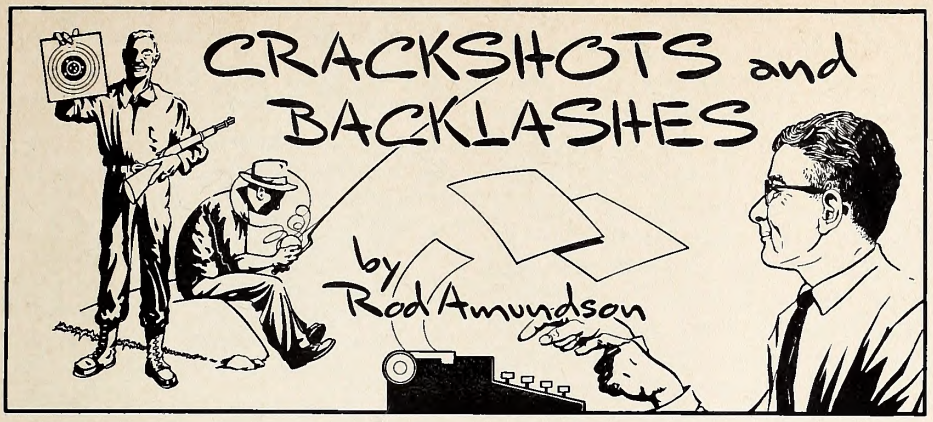


Much is being made of the fact that Americans own more guns than any other people in the world.

At the same time, no one has bothered to mention that Americans also have the world's greatest wildlife conservation effort—and the wildlife to prove it.

If the indoor public has bothered to think about it at all, this appears to be a contradiction. But the fact is, millions of us have guns because we have wildlife, and wildlife because we have guns. Guns and wildlife are the Siamese twins of modern resource management. What happens, then, if they are separated by political surgery? What would be the effect of strict gun registration and licensing laws upon the American program of wildlife conservation?

Proposed federal gun registration and licensing will discourage gun ownership, not because of cost, but because of the harassment that goes with it: fingerprinting, photographs, affidavits from doctors and police officers, frequent renewals of permits, separate permits for each gun, permits to buy ammunition, etc., etc.

As guns go, so goes hunting. And as hunting goes, so goes wildlife conservation as we know it.

Most of today's huters are casual sportsmen who may hunt only on opening day or, at most, three or four days a season. Come fall, they'd just as soon be doing something else. These sometimes hunters, faced with cumbersome gun registration and licensing, are likely to say the heck with it and spend Saturday afternoon in front of TV.

Strict gun registration and licensing will eventually drive millions of these casual players out of the game. This would mean great losses in hunting license and fee revenues that are now earmarked for wildlife restoration. Since 1939, sportsmen have contributed over $339,000,000 to federal aid in wildlife restoration through the famous Pittman-Robertson Program that is financed by a 11% federal excise tax on sporting arms and ammunition. In addition, millions of dollars in federal duck stamp receipts and state hunting license fees are used to finance state and federal wildlife conservation programs. No part of these wildlife programs are paid from any general tax funds, but are financed entirely by sportsmen.

Losing these millions in conservation revenue would be bad enough. But to make matters worse, most of this money would be lost to areas that can least afford to lose it—the densely populated eastern states that need all the wildlife conservation and public land they can get.

Conservation leaders take a grim view of wildlife conservation's future if law-abiding citizens are unnecesasrily discouraged in purchasing, possessing, and transporting guns for hunting.

Thomas Kimball, Executive Director of the National Wildlife Federation, made a strong statement about this on June 28 before the Subcommittee on Juvenile Delinquency of the Senate Judiciary Committee. He said that hunters strongly resent being placed in a category with criminals, assassins and anarchists just because they enjoy hunting as quality outdoor recreation. Legitimate gun owners, Kimball explained, have concluded that some legislators and law enforcement officials want to solve the crime problem by making guns inaccessible and, in effect, disarming the people.

Kimball's hope, and the hope of all conservation leaders, is that Congress does not support any approach which tends to eliminate the American hunter—and his financial support of American wildlife conservation. ◆

John Madson and
Ed Kozicky
Conservation Dept.
Winchester-Western

### Don't Look Now . . .

DEAR SIR:

I must say that I concur with all of the ideas presented on boating safety in the August issue of *Wildlife in North Carolina*. Regarding the topic of staring at occupants of other boats, under the heading of Do's and Don'ts of Outboarding, may I suggest the following:

> There are many new kinds of sunglasses now available that could be used by those people who enjoy watching other people. These sunglasses would permit the occupants of other boats to be seen without getting a feeling that they are being stared at, for they really couldn't tell whether a person was looking at them or not.

In a survey in the office here at Graylyn, we found that eight out of ten people who enjoy boating confessed that they go to observe other people in their recreational pursuits even to the point of staring at them, and I have recommended to them that they purchase these new "peekaboo" sunglasses so as not to offend anyone on the water.

Now as for myself, my interest on the water is mainly with rod and reel. Here is a separate kind of problem, e.g., recently while fishing with two renowned flounder fishermen, Mr. George Simmons of New Bern and Dr. Branch Moore of Kinston, "near" Bogue Inlet, I was embarrassed by all the stares we received while bringing in some nice flatties. The two veterans of the marshes

## KNOW YOUR PROTECTOR

**Carl G. Colvard**

Carl G. Colvard was born in Watauga County, North Carolina on July 12, 1939. He is the son of Mr. and Mrs. Earl E. Colvard of Vilas, North Carolina. Carl received his high school education from Cove Creek High School.

Prior to employment with the N. C. Wildlife Resources Commission, he was employed as a policeman by the City of Boone, North Carolina. Carl completed the basic recruit school for Wildlife Protectors at the Institute of Government in Chapel Hill, North Carolina in 1966. He was employed as a Wildlife Protector in November 1966, and was stationed in Delco, N. C. In December 1966, he was transferred to Laurinburg. Since his initial employment, Carl has completed four In-Service Training Schools at the Institute of Government.

Mr. Colvard is a member of the Southern Association of Game and Fish Commissioners, Law Enforcement Section.

Mr. Colvard is married to the former Jean McCutcheon of Kingstree, South Carolina, and they have three children, Alan, Glenda, and Cynthia. The Colvard family resides at Route 2, Laurinburg, North Carolina.

## DIVISION ENFORCEMENT RECORD FOR OCT., 1968

**HUNTING & FISHING**

| | |
|---|---|
| Persons checked | 24,811 |
| Total prosecutions | 869 |
| Total convictions | 851 |
| Total cases not guilty | 4 |
| Total cases nol prossed | 12 |
| Total cases dismissed | 2 |
| Total fines collected | $6,066.50 |
| Total costs collected | $7,447.93 |

**BOATING**

| | |
|---|---|
| Persons checked | 1,725 |
| Total prosecutions | 67 |
| Total convictions | 62 |
| Total cases not guilty | 0 |
| Total cases nol prossed | 5 |
| Total cases dismissed | 0 |
| Total fines collected | $ 125.60 |
| Total costs collected | $ 648.20 |

All fines and any arrest or witness fees are paid into the school funds of the counties in which the violation occurred, and no part of the fines or costs collected are paid to the North Carolina Wildlife Resources Commission or its personnel.

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explained to me that there isn't much that can be done while bringing in your favorite salt water food except don't leave your flounder too long in view of other boats as you bring it over the side of the boat. In this case may I suggest the following adjunct to Do's and Dont's of Outboarding . . .

Do avoid casting into an identical spot where someone else is fishing . . . it might cause a few prolonged stares.

Sincerely,
BILLY J. HAMMOND
GRAYLYN
Phychology-Reading-Speech
WINSTON-SALEM

### Snakes Alive!

DEAR SIRS:

We are raising a litter of Brown (DeKay's) Snakes in our sun parlor! Early in April '68, while weeding in the yard, I found a Brown Snake which we put in an old 12" x 7½" aquarium with sand, humus, a small branch (for snake to climb on) and a container of water, and taped window screen on top. On June 3rd, 1968, a friend gave us another Brown Snake which we put into the cage. The two were very affectionate as well as companionable, enjoying their weekly feeding of earth worms and our human activities.

Sometime between July 16 and 21st, while we were at the beach, baby snakes were born and we found *11* upon our return! One adult snake, (the father we presume) had killed himself trying to get out of the cage. The young ones are about 3½ inches long, ⅛ inch in diameter, have a white ring just below the head, and are almost black. Two have died; one drowned and the other was "puny" when we found them. These we've preserved in formaldehyde.

The remaining adult "cuddles" the little ones at times and at other times climbs onto the branch, as if to get away from the children; "She" does not mind when we handle her or the young snakes, which also take turns exercising on the branch. They're quite sensitive to a flashlight or have lots of curiosity.

This kind of snake is very adaptable to being a house pet, interesting even to people who dislike snakes and always makes a hit at Day Camp Nature Study classes.

For information on the habits and care of this family we have used the *N. C. Wildlife* article, printed 2 or 3 years ago, and Raymond L. Ditmars' *The Reptile Book,* Doubleday, Page & Co., 1920, Garden City, N. Y., pp. 267-269. When the magazine article was published, I wrote you describing our experiences with one adult. On 7-29-68 a neighbor's son found a baby Brown Snake, evidently the same age as ours, under a cinder block in his yard, and he's raising it under the same conditions.

Our good friend, Mr. W. T. Combs, suggested that we write this letter.

We, the neighborhood children and most of our friends are enjoying our unusual pets.

Sincerely yours,
MRS. N. H. McCOLLUM, JR.
EDEN

### Attention Hunters

DEAR SIRS:

The plea for hunters to respect the property of the landowner has been repeated so many times that the majority of hunters no longer read such articles. Yet, the saddening truth is that such disregard of attitude and actions are rapidly closing private lands to hunters. Each of us must police our actions and the actions of those in the field as a group if we are to regain the confidence and trust of private landowners.

Mr. Emmitt Marshall of Wake Forest has for years given hunters access to his land, a large acreage which has traditionally provided excellent dove shooting. Mr. Marshall has now closed his land to all hunters. We talked with Mr. Marshall

on September 11, 1968, and he showed us an aluminum stool with an attached pouch which contained a box of 12-gauge shotgun shells. This stool had been left in a corn field and was picked up by a combine as they were harvesting the corn. The machine was damaged and was out of operation for a day, but of greater concern to Mr. Marshall was the fact that several of the shells could have discharged as they were going into the combine. This could have resulted in a fatal accident to the combine operator.

Can anyone disagree with this landowner's decision to close his land to hunters? We think not! It is a privilege, not an inherent right to hunt on someone else's land. Time is the most valuable commodity the farmers of today have and they cannot tolerate acts by hunters that result in lost time from their farming operations. Their only alternative is to close their lands. Those of us who enjoy the age-old sport of hunting must respect the landowner and his land.

JOHN I. FREEMAN, D.V.M.
B. GENE BARRETT
RALEIGH.

## SKIPPER

• **continued from page 17**

only time that the number is transferred is when a dealer places a dealer set on a different demonstration craft.

Due to abandonment or destruction, the Commission's Registration Section has issued some 80,000 numbers since 1960. Only 64,000 (total number reported by October, 1968) are considered active. This is assuming that all boaters re-register annually.

Reciprocity in registration was a requirement in the Federal Act of 1958. The specified period was 90 days. This means, for example, that a boat properly registered in North Carolina can be used in Virginia waters for 90 days. After that period, Virginia may require the boat to be registered there; that is, registered in the state of *principal* use.

A lost certificate can be replaced by requesting from the Wildlife Commission a duplicate certificate application form. The completed form and 50 cents puts you back into business.

It behooves the owner of a stolen boat to report it to the Wildlife Commission and local authorities. This, then, is one of several good reasons for registration—quick identity. Likewise, destroyed or abandoned boats and changes of address, should be reported to the Commission within 15 days.

Don't forget if you decide to sell, you are required to enter the date of the transaction and your signature on the back of your certificate of number and deliver it to the person or dealer to whom the boat is sold.

If all of this sounds pretty complicated, it really is not. And remember, when you pay your registration, you are paying your share towards safer boating in the state. Remember, too, keep your certificate aboard and apply your numbers properly and neatly. It's all a part of running a tight ship. ⬍

## MARKET HUNTING

• **continued from page 8**

one of the best managed wild fowl conservation programs in the entire country.

In short, there seem to be more sport-minded sportsmen who are determined to save the sport than in previous years. Many economy-minded Currituckians also realize it is to their interest to conduct a well-managed conservation program; while their fathers hunted for the market, the sons build blinds and take out hunting parties or are employed by the hunting clubs.

In the 1880's two brothers were gunning with their father in the Pine Island marshes. The father sent the two boys to pick up a duck that had been shot down a short distance from the blind. The younger brother sat in the bow of the skiff with his gun across the lap while his older brother poled the skiff up to the duck that had turned on its back and appeared to be dead. It was flipped over on its belly while being pulled alongside the skiff with the oar. It suddenly arose from the water and took off. The boy in the bow was so surprised that he made no attempt to raise his gun. His brother shouted, "Lloyd, why didn't you shoot that duck?" The other boy shouted back, "I would have, but he has done flewed."

Hopefully, the laws that have been passed during the last 50 years, along with today's renewed determination to save our wild fowl population will insure a great grandson of that boy may have the opportunity in some distant day to shout, " I would have shot him . . . but he has done flewed.", and who knows he might just be referring to the great-grandson of the earlier duck who "flewed away." ⬍

**ADDRESS CHANGE NOTIFICATION**

Name_____

Old Address_____

_____

_____

New Address_____

_____

_____

Zip Code_____

IMPORTANT:

**Enclose present Address Label**

Please notify us promptly of change of address.

**Use this blank to subscribe NOW—$.50 a year**

**$1.00 for two years. No stamps, please**

**WILDLIFE IN NORTH CAROLINA**
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Name_____

Street or Route_____

City_____ State_____ Zip Code_____

**Please notify us promptly of change in address**
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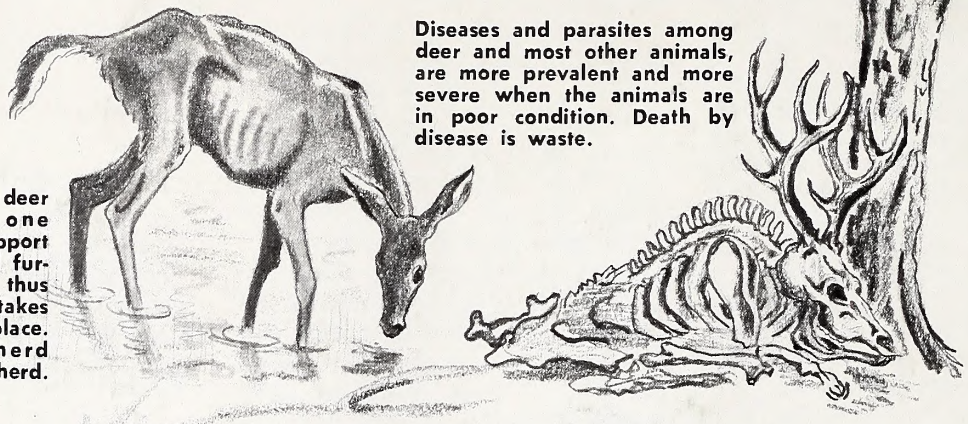
# Life in the Balance



Diseases and parasites among deer and most other animals, are more prevalent and more severe when the animals are in poor condition. Death by disease is waste.

An overpopulated deer range is soon one which won't support healthy deer. And furthermore, habitat thus over-browsed takes many years to replace. A balanced herd means a healthy herd.

Stray dogs often are potential deer killers and take a high toll of wildlife each year. Like this one, even adult deer are attacked but young deer and pregnant does are particularly vulnerable. Don't let your pets run wild.

WALKER

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